

REPORT NO. 207-KAR-04-004

**SAFETY COMPLIANCE TESTING
FOR FMVSS 207**

SEATING SYSTEMS

2004 CHEVROLET
MALIBU
4 DOOR SEDAN

NHTSA NO. C40105

PREPARED BY:
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June 11, 2004

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
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WASHINGTON, D.C. 20590

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SECTION 1
PURPOSE OF COMPLIANCE TEST

1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2004 Chevrolet Malibu 4 Door Sedan, manufactured by General Motors Corporation, to determine compliance with FMVSS 207, "Seating Systems". The purpose of this standard is to reduce the number of deaths and injuries that may be caused by the failure of seats, their attachment hardware, and their installation when said failure results from the forces on the seat in a vehicle impact.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-207-09, dated June 18, 1992, and corresponding KARCO Engineering, LLC test procedure KTP-207, dated August 2, 2002. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

Section 2	-	Compliance Test Procedure and Data Summary
Section 3	-	Compliance Test Data
Section 4	-	Noncompliance Data (if applicable)
Appendix A	-	Photographs
Appendix B	-	Data Plots
Appendix C	-	Test Equipment List and Calibration Information

SECTION 2

COMPLIANCE TEST PROCEDURE and DATA SUMMARY

2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY

A 2004 Chevrolet Malibu 4 Door Sedan was subjected to FMVSS 207 compliance testing on June 7, through June 11, 2004. All tests were conducted at KARCO Engineering, LLC in Adelanto, California. Summary data is shown on Data Sheet No. 2. The following tests were performed:

- Receiving inspection
- Aft moment tests on front seat backs
- Aft load tests on front seat frames and adjusters
- Forward load test on front passenger side seat back
- Forward load tests on front seat frames and adjusters, including FMVSS 210 Loads
- Aft load tests on rear seat cushions and seat backs
- Forward load tests on rear seat cushions and seat backs

The tests were conducted per the FMVSS 207 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

2.1 Test Vehicle Inspection. The test vehicle was inspected to verify that all seat, restraint systems and seat belt assembly anchorage systems are complete and the seat adjusting mechanisms are working properly.

2.2 Test Vehicle Preparation and Pre-test Measurements. The test vehicle was securely mounted to the test fixture and connected to the appropriate number of hydraulic actuators. Lateral spacing of the individual seat anchorages were measured and all other angular and dimensional measurements were verified to be in compliance with the requirements of the subject safety standards. The components were weighed and their centers of gravity determined.

2.3 Static Load Tests-General Performance Requirements.

When tested in accordance with S5, each occupant seat, other than a side-facing seat or a passenger seat on a bus, shall withstand the following forces:

- (a) In any position to which it can be adjusted — 20 times the weight of the seat applied in a forward longitudinal direction;

(Continued on next page)

2. (CONTINUED)

- (b) In any position to which it can be adjusted — 20 times the weight of the seat applied in a rearward longitudinal direction;
- (c) For a seat belt assembly attached to the seat — the force specified in subparagraph (a), if it is a forward facing seat, or subparagraph (b), if it is a rearward facing seat, in each case applied simultaneously with the forces imposed on the seat by the seat belt assembly when it is loaded in accordance with section S4.2 of Federal Motor Vehicle Safety Standard No. 210; and
- (d) In its rearmost position — a force that produces a 3,300 inch-pound moment about the seating reference point (SRP) for each designated seating position (DSP) that the seat provides, applied to the upper cross-member of the seat back or the upper seat back, in a rearward longitudinal direction for forward-facing seats and in a forward longitudinal direction for rearward-facing seats.
- (e) To meet FMVSS 210 requirements, the anchorages, attachment hardware, and attachment bolts for all Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208) shall withstand 3,000 pound forces when tested in accordance with S5.2.

SECTION 3
COMPLIANCE TEST DATA

3. COMPLIANCE TEST DATA

The results of FMVSS 207 compliance tests that were conducted on the 2004 Chevrolet Malibu 4 Door Sedan on June 7 through June 11, 2004, to determine compliance with FMVSS 207, "Seating Systems" are presented in this section. No performance failures were identified for the vehicle tested.

TEST VEHICLE RECEIVING INSPECTION

VEHICLE			
YEAR	2004	MAKE	CHEVROLET
MODEL	MALIBU	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C40105	VIN	1G1ZT52864F122193
BUILD DATE	10/03	TEST DATE	06/07/04 - 06/11/04
TEST LABORATORY		KARGO ENGINEERING, L.L.C.	

1. First compliance test by laboratory for this vehicle is S207 test.

Yes	X	No (Go to Item 2)
X	1.1	Label test vehicle with NHTSA Number
X	1.2	Verify all options on the "window sticker" are present on the vehicle
X	1.3	Verify tires and wheel rims are new and the same as listed
X	1.4	Verify there are no dents or other interior or exterior flaws
X	1.5	Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys
X	1.6	Verify the vehicle is equipped with the proper fuel filler cap
X	1.7	If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition

2. Verify seat adjusters are working

X	Yes	No
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3. Verify there is a seat belt at each seating position

X	Yes	No
----------	------------	-----------

4. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.

	X	Yes	No
1. Do you have a current driver's license?			
2. Do you have a current vehicle registration?			
3. Do you have a current insurance policy?			
4. Do you have a current title?			
5. Do you have a current sales tax certificate?			
6. Do you have a current license plate?			
7. Do you have a current title transfer fee?			
8. Do you have a current title transfer tax?			
9. Do you have a current title transfer fee and tax?			
10. Do you have a current title transfer fee and tax and title transfer fee and tax?			

RESULTS OR RECEIVING INSPECTION:

PASS -- X

FAIL--

CONDITIONAL --

REMARKS:

RECORDED BY: MARK A. KRATZKE DATE: 06/07/04

APPROVED BY: **MATTHEW A. IVORY** DATE: **06/07/04**

DATA SHEET NO. 2
SEATING SYSTEM TEST RESULTS

VEHICLE			
YEAR	2004	MAKE	CHEVROLET
MODEL	MALIBU	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C40105	VIN	1G1ZT52884F122193
BUILD DATE	10/03	TEST DATE	08/07/04 - 06/11/04
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

LEGEND: W_a - Weight of Seat Assembly
 W_b - Weight of Seat Back
 W_c - Weight of Seat Cushion
 Z - Distance from Seat SRP to Uppermost Crossmember = 18.75"

FOR FRONT BUCKET SEATS - - LEFT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	W _b = 16	20 x W _b = 480	N/A	N/A	N/A
Seat Assy.	Forward	W _a = 44	20 x W _a = 880	876.2	N/A	PASS
	Rearward	W _a = 44	20 x W _a = 880	875.7	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	174.3	3266.1	PASS

FOR FRONT BUCKET SEATS - - RIGHT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	W _b = 16	20 x W _b = 320	319.2	N/A	PASS
Seat Assy.	Forward	W _a = 44	20 x W _a = 880	872.3	N/A	PASS
Seat Assy.	Rearward	W _a = 44	20 x W _a = 880	869.5	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	172.5	3234.4	PASS

(Continued on next page)

DATA SHEET NO. 2 (CONTINUED)

FOR FRONT BUCKET SEATS - - COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Driver Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2899.9	PASS
Driver Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2896.8	PASS
Center Lap Belt	Forward	N/A	5,000 lbs, -10, -50	N/A	PASS
Passenger Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2897.8	PASS
Passenger Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2895.2	PASS
Driver Seat Assembly	Forward	W _a = 44	20 x W _a = 880	878.6	PASS
Passenger Seat Assembly	Forward	W _a = 44	20 x W _a = 880	878.9	PASS

FOR REAR SEATS - -

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Left Rear Seat Back	Aft	W _b = 20	20 x W _b = 400	400.0	N/A	PASS
Right Rear Seat Back	Aft	W _b = 14	20 x W _b = 280	279.9	N/A	PASS
Rear Seat Cushion	Aft	W _c = 12	20 x W _c = 240	239.9	N/A	PASS
Left Rear Seat Back	Forward	W _b = 20	20 x W _b = 400	399.9	N/A	PASS
Right Rear Seat Back	Forward	W _b = 14	20 x W _b = 280	279.6	N/A	PASS
Rear Seat Cushion	Forward	W _c = 12	20 x W _c = 240	239.9	N/A	PASS

DATA SHEET NO. 3
SEAT BACK ANGLES

VEHICLE			
YEAR	2004	MAKE	CHEVROLET
MODEL	MALIBU	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C40105	VIN	1G1ZT52864F122193
BUILD DATE	10/03	TEST DATE	06/07/04 - 06/11/04
TEST LABORATORY	KARGO ENGINEERING, L.L.C.		

LAP BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE HORIZONTAL	MEASURED ANGLE		DOES BELT SECURELY FIT ON PELVIS?
			I/B	O/B	
FRONT	Left	30 to 75 degrees	38	39	YES
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	38	39	YES
REAR	Left	30 to 75 degrees	N/A	N/A	N/A
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	N/A	N/A	N/A

SHOULDER BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE OR BELOW HORIZONTAL	MEASURED ANGLE
FRONT	Left	0 - 80 degrees above	32
		0 - 40 degrees below	N/A
	Right	0 - 80 degrees above	32
		0 - 40 degrees below	N/A
REAR	Left	0 - 80 degrees above	N/A
		0 - 40 degrees below	N/A
	Center	0 - 80 degrees above	N/A
		0 - 40 degrees below	N/A
	Right	0 - 80 degrees above	N/A
		0 - 40 degrees below	N/A

RECORDED BY: MARK A. KRATZKE DATE: 6/10/04

APPROVED BY: MATTHEW A. IVORY DATE: 6/10/04

DATA SHEET NO. 4**REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING**

The following vehicle has been subjected to compliance testing for FMVSS No. 207

VEHICLE			
NHTSA NO.	C40105	TEST DATE	06/07/04 - 06/11/04
CONTRACT NO.	DTNH22-01-C-31025	VIN	1G1ZT52864F122193
SEAT CONFIGURATION			
VEHICLE OR SEAT MANUFACTURER		CHEVROLET	
TEST LABORATORY		KARCO ENGINEERING, L.L.C.	

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

TEST VEHICLE INFORMATION			
Manufacturer	GENRAL MOTORS CORPORATION	VIN	1G1ZT52864F122193
Manufacturing Date	10/03	Delivery Date	03/28/03
Dealer	CREST CHEVROLET	NHTSA No.	C40105
Odometer Reading (mi.)	72	Fuel Type	GAS
Engine Displacement	3.5 LITERS	Cylinders	V6
Transmission	AUTOMATIC	Final Drive	FRONT
Engine Placement	TRANSVERSE	Color	SPORT RED METALLIC
Tire Press./Max. Cap. Front	40 psi	Cold Tire Press. Front	40 psi
Tire Press./Max. Cap. Rear	40 psi	Cold Tire Press. Rear	40 psi
Recommend Tire Size	P205/65R15	Type of Spare	T125/70 D15
Tire Size on Vehicle	P205/65R15	Manufacturer	BRIDGESTONE
GVWR	4220 lbs.	Cargo Capacity	917 lbs.
GAWR Front	2250 lbs.	GAWR Rear	1970 lbs.
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	YES
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	NO
Driver Airbag	YES	Passenger Airbag	YES

Test Vehicle Condition: FRONT OF VEHICLE WAS REMOVED, SEATS WERE TESTED.

RECORDED BY: MARK A. KRATZKE

DATE: 06/11/04

APPROVED BY: MATTHEW A. IVORY

DATE: 06/11/04

APPENDIX A
PHOTOGRAPHS

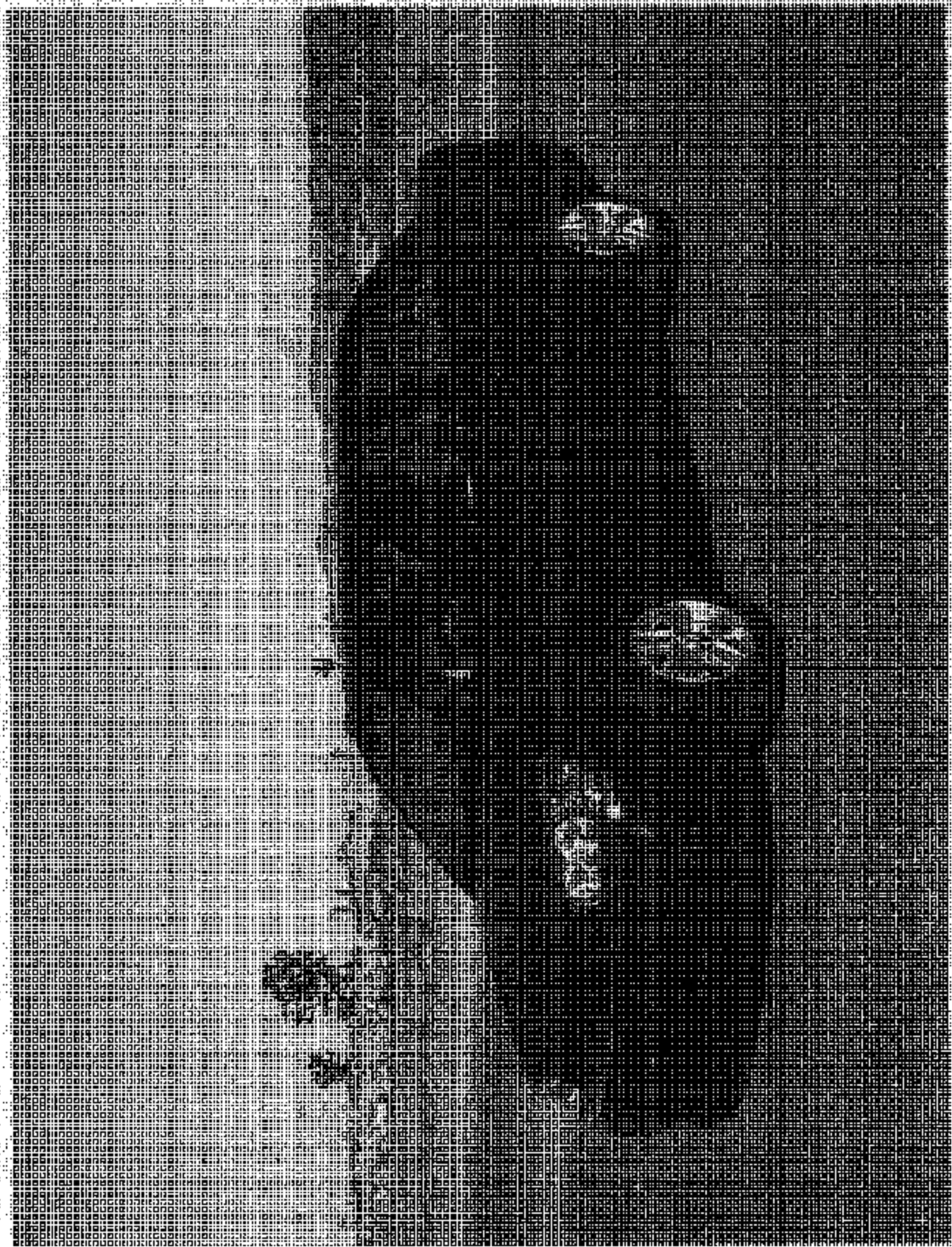


Figure A-1 Left Front (As Received)

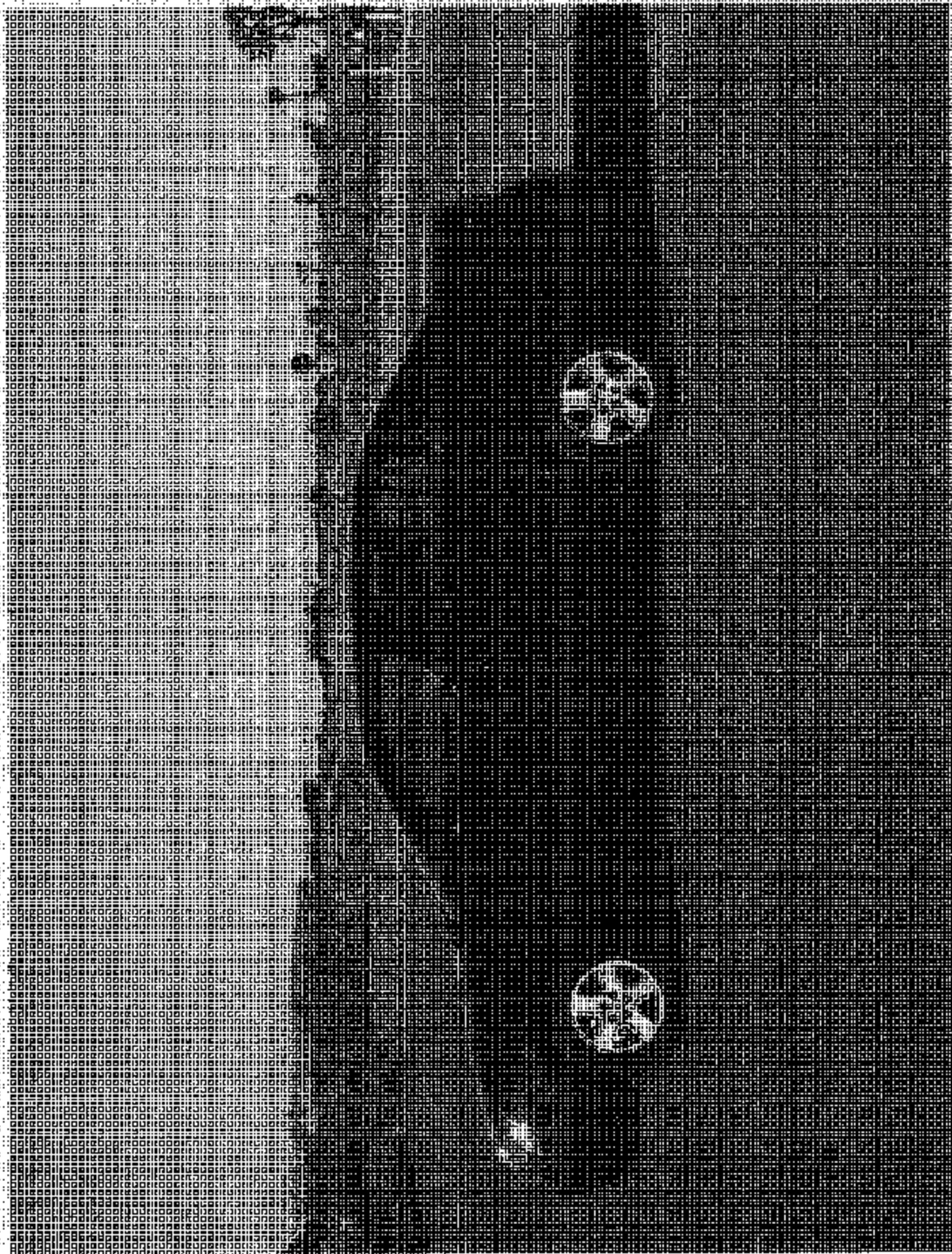


Figure A-2: Left Side (as Received)

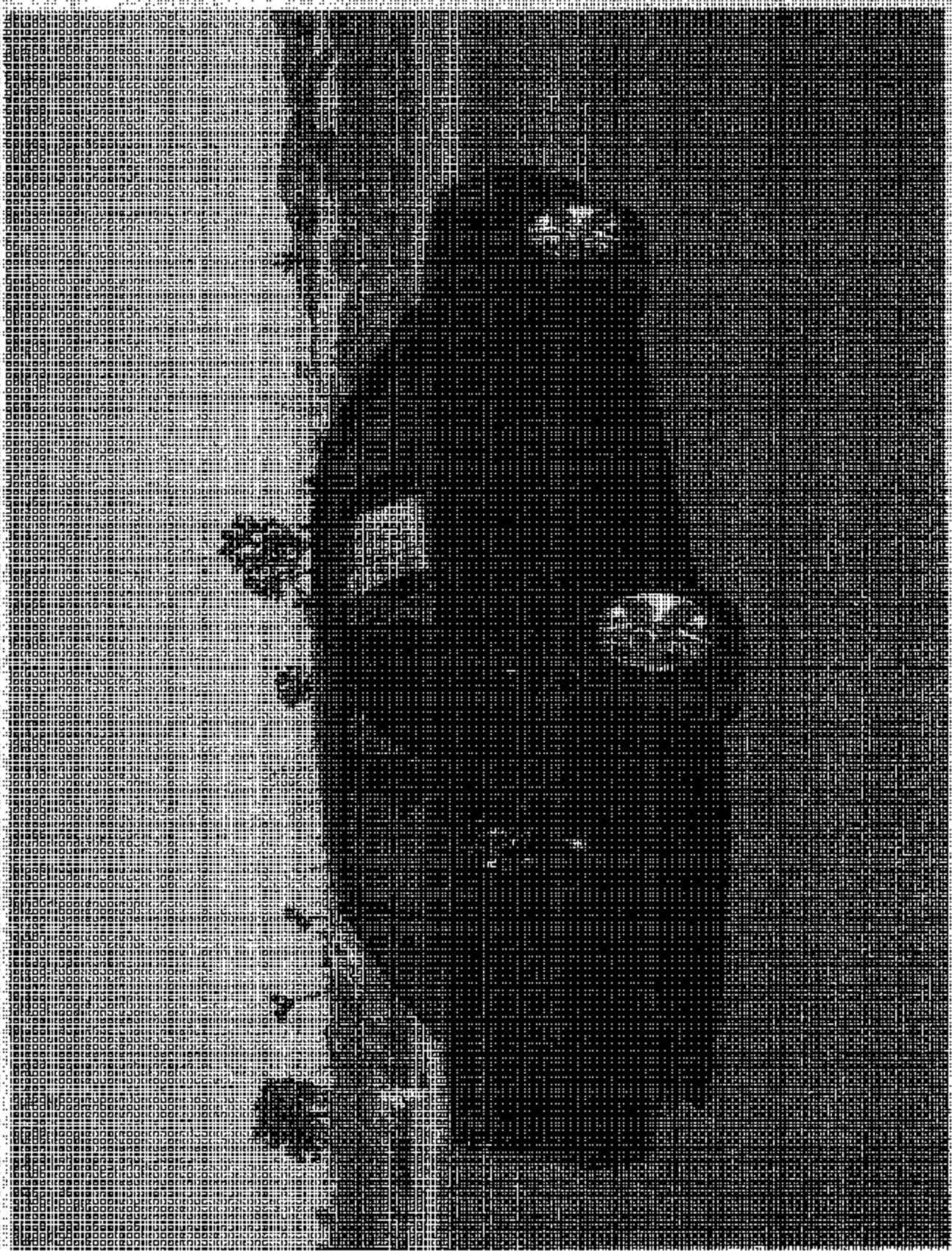


Figure A-3: Right Rear (as Received)

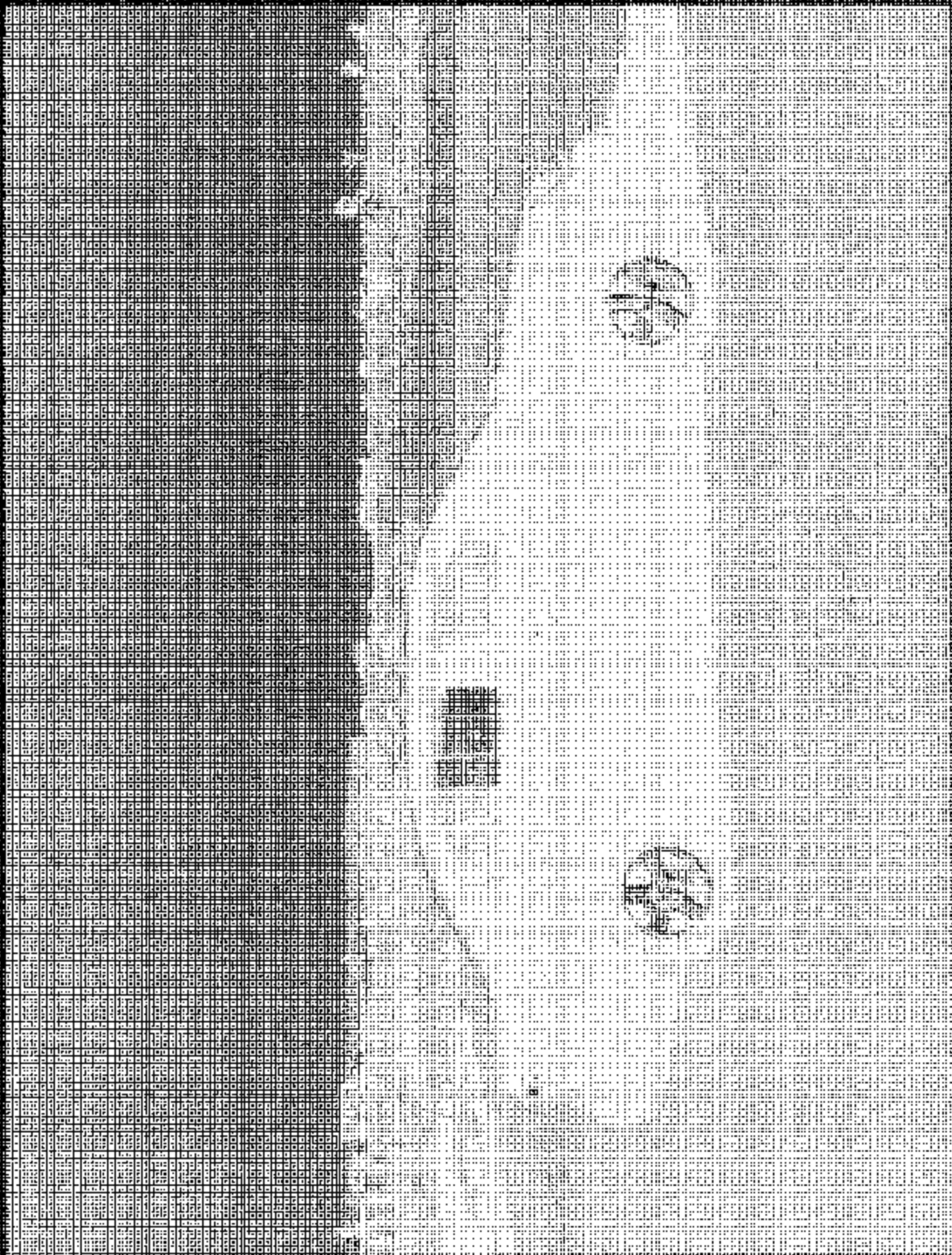


Figure A-4: Right Side (as Received)

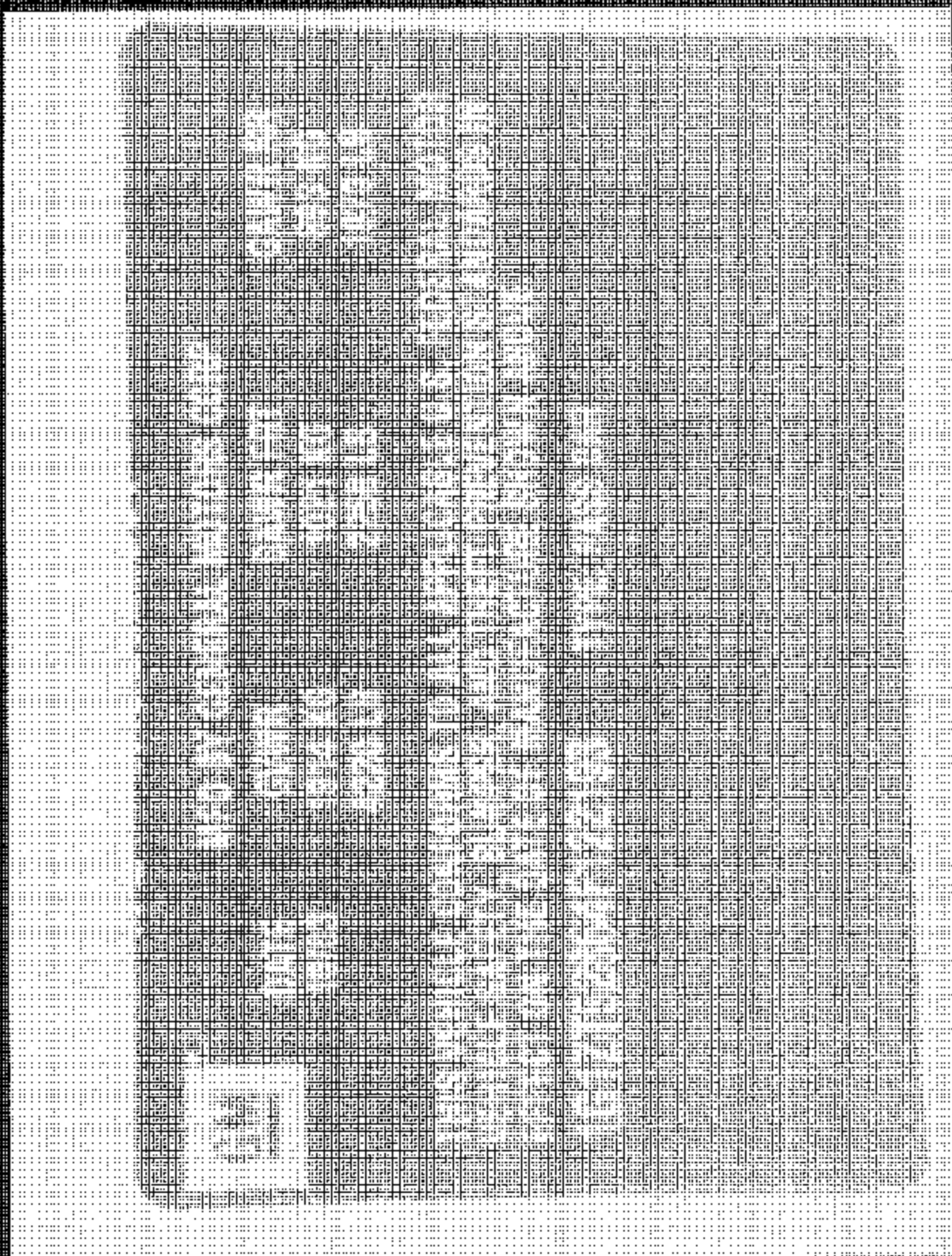


Figure A-5. Vehicle Communication Label

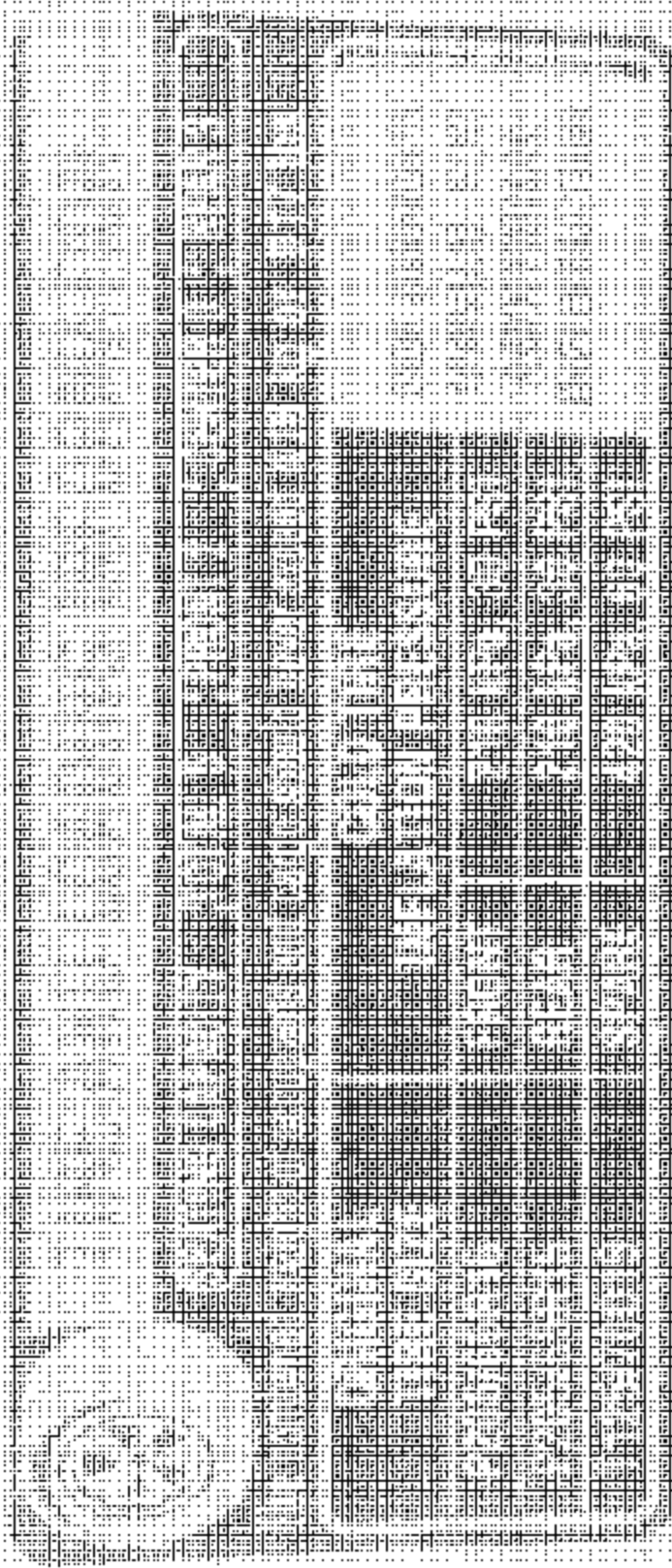


Figure A-5. Vencedor T20-Lab01



Figure A-7. Vehicle Movement Test Facility



Figure A-5. Vehicle Mounts in Test Fixture

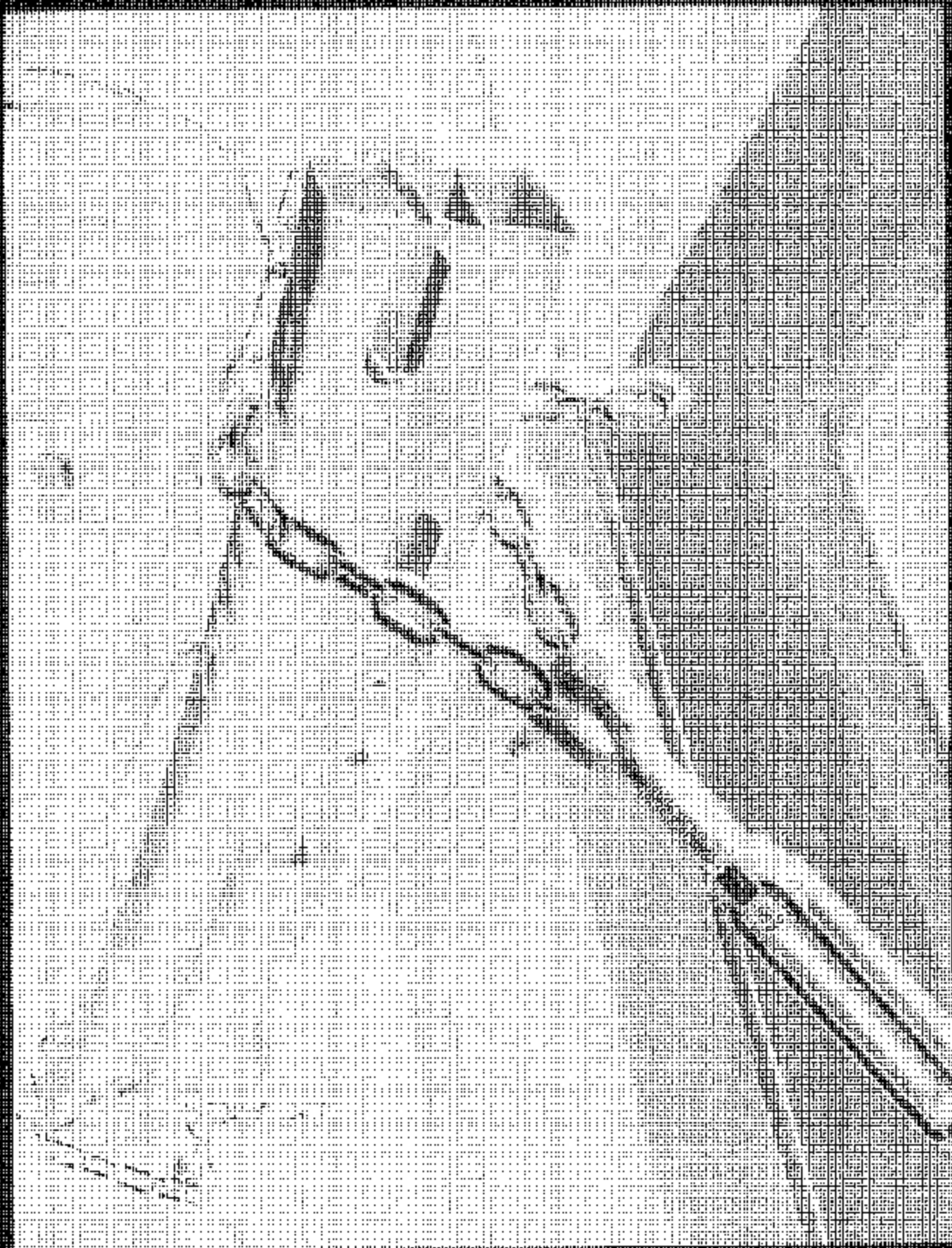


Figure A-8. Vehicle Mounted in Test Fixture

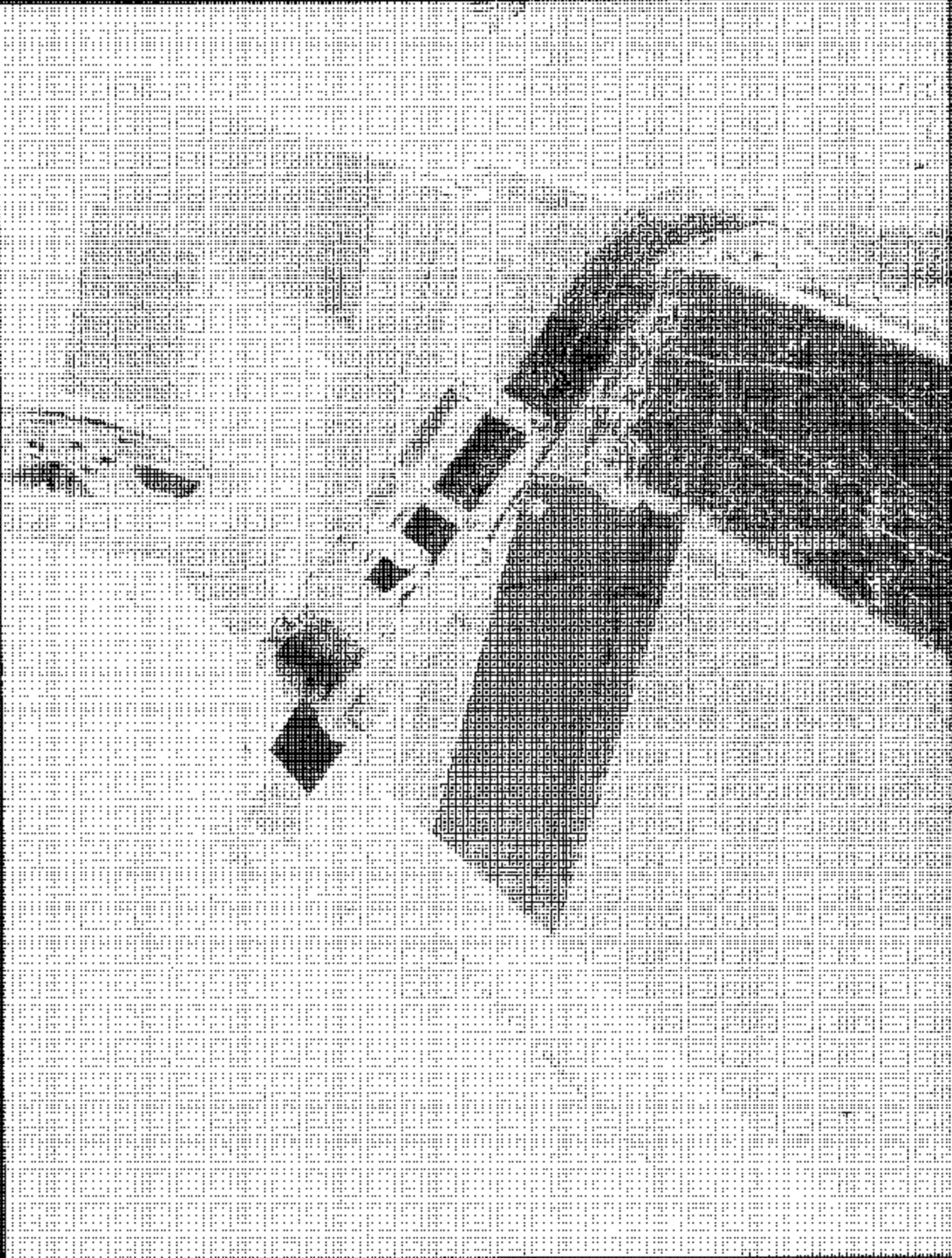


Figure A-10. Vehicle Mounted in Test Fixture

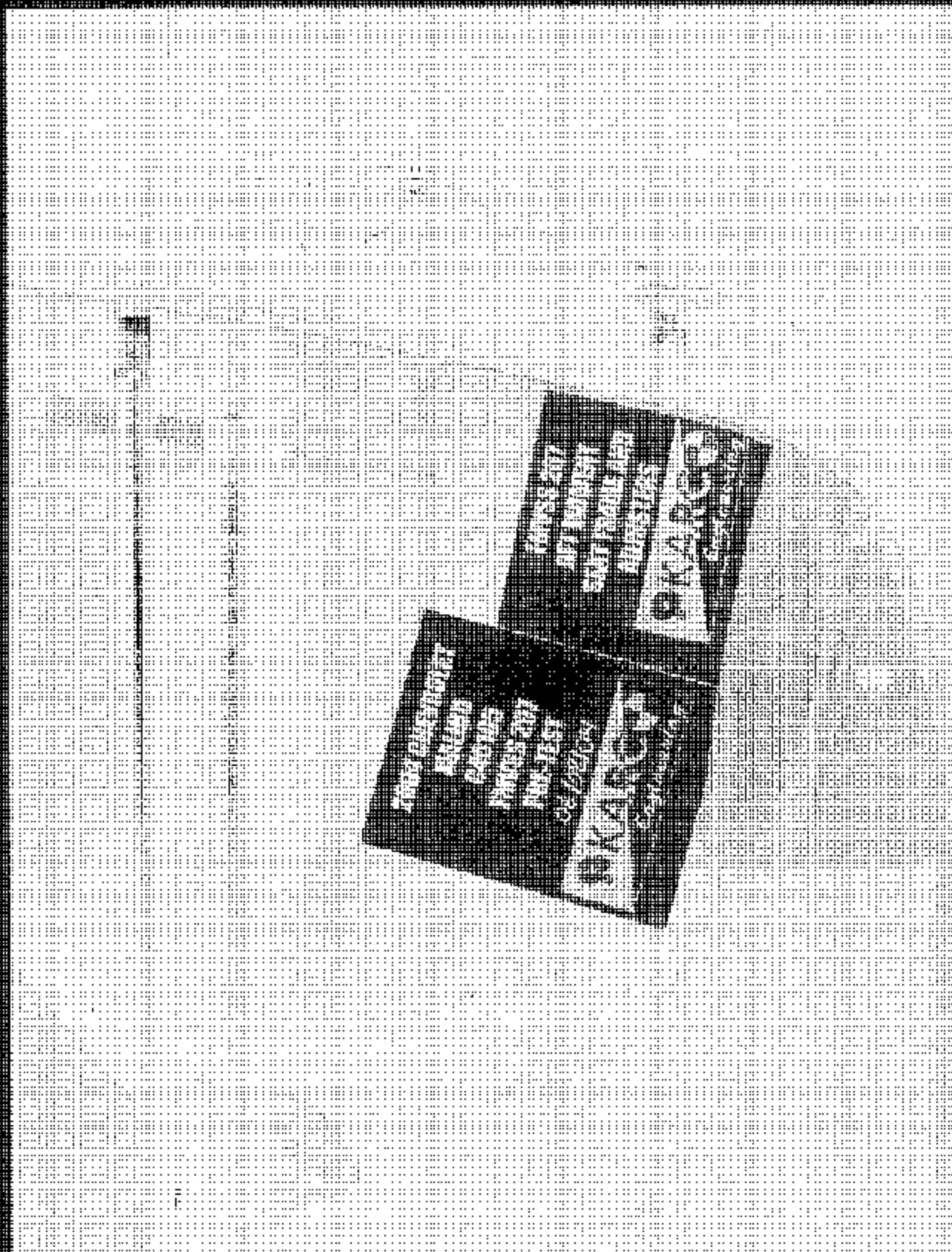


Figure A-11: Air Moment on Seat Frame and Adjusters, Driver's Side, Pre-Test

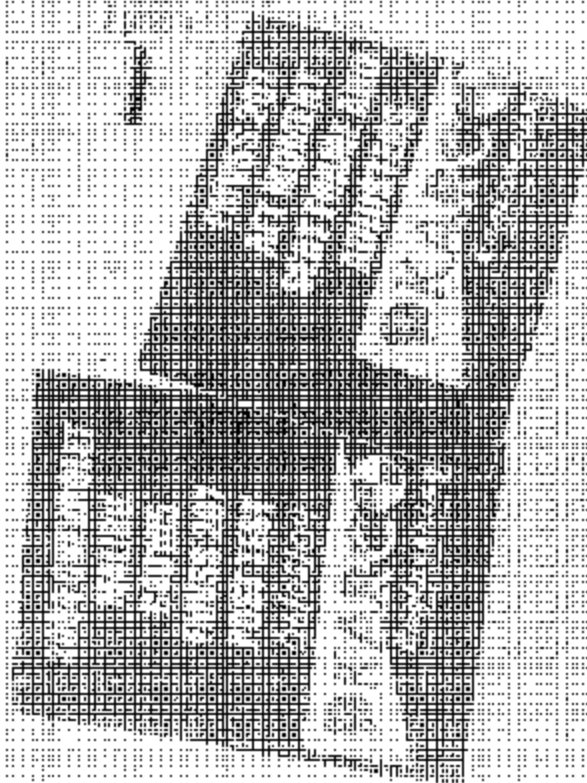


Figure A-12: Air Movement on Seat Frame and Adjusters, Driver's Side, Post-Test

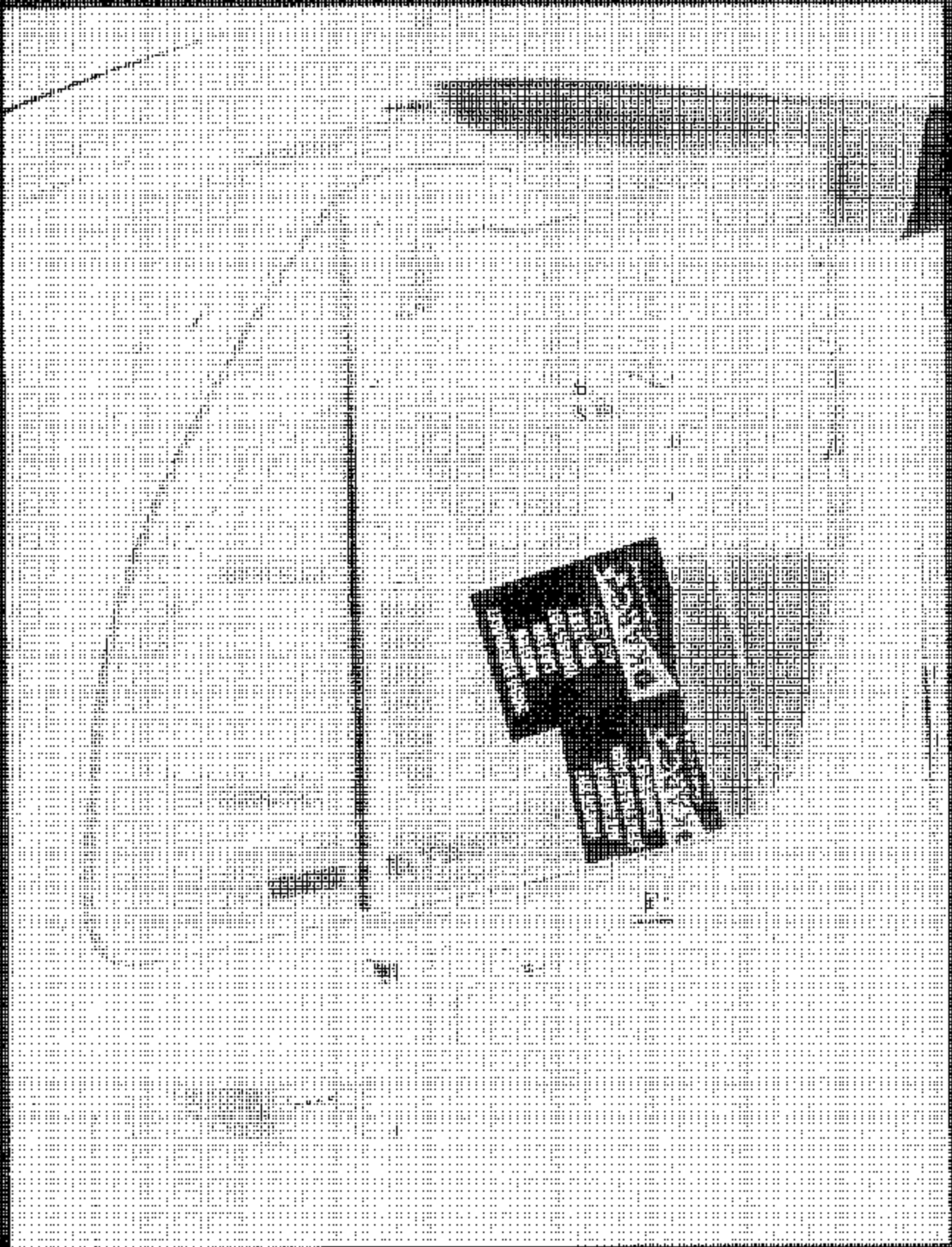


Figure A-13. At Moment on Seat Frame and Adjuster, Passenger's Side, Pre-Test

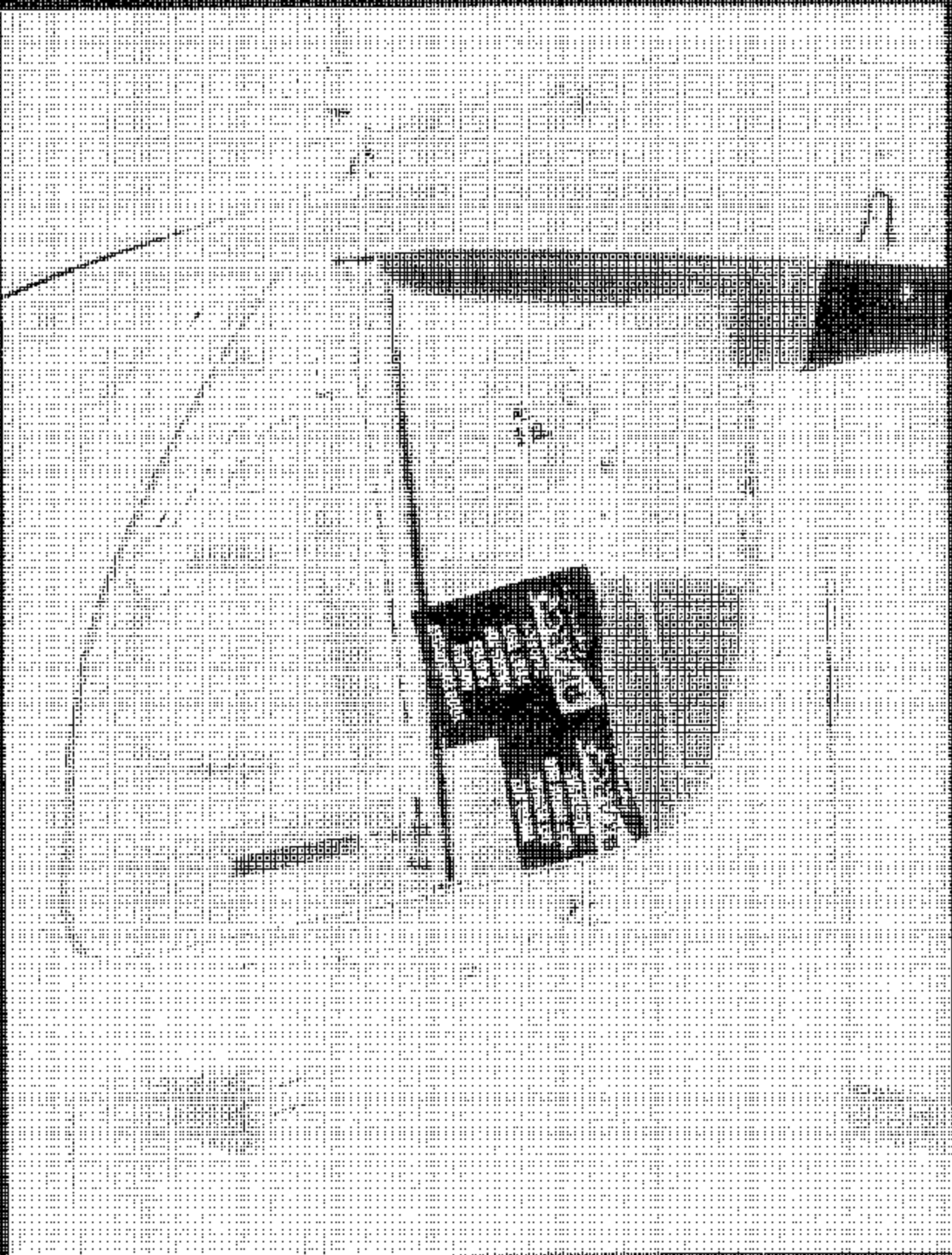


Figure A-14. Air Mounted on Sea/Fence and Adjacent Passenger's Side Footrest

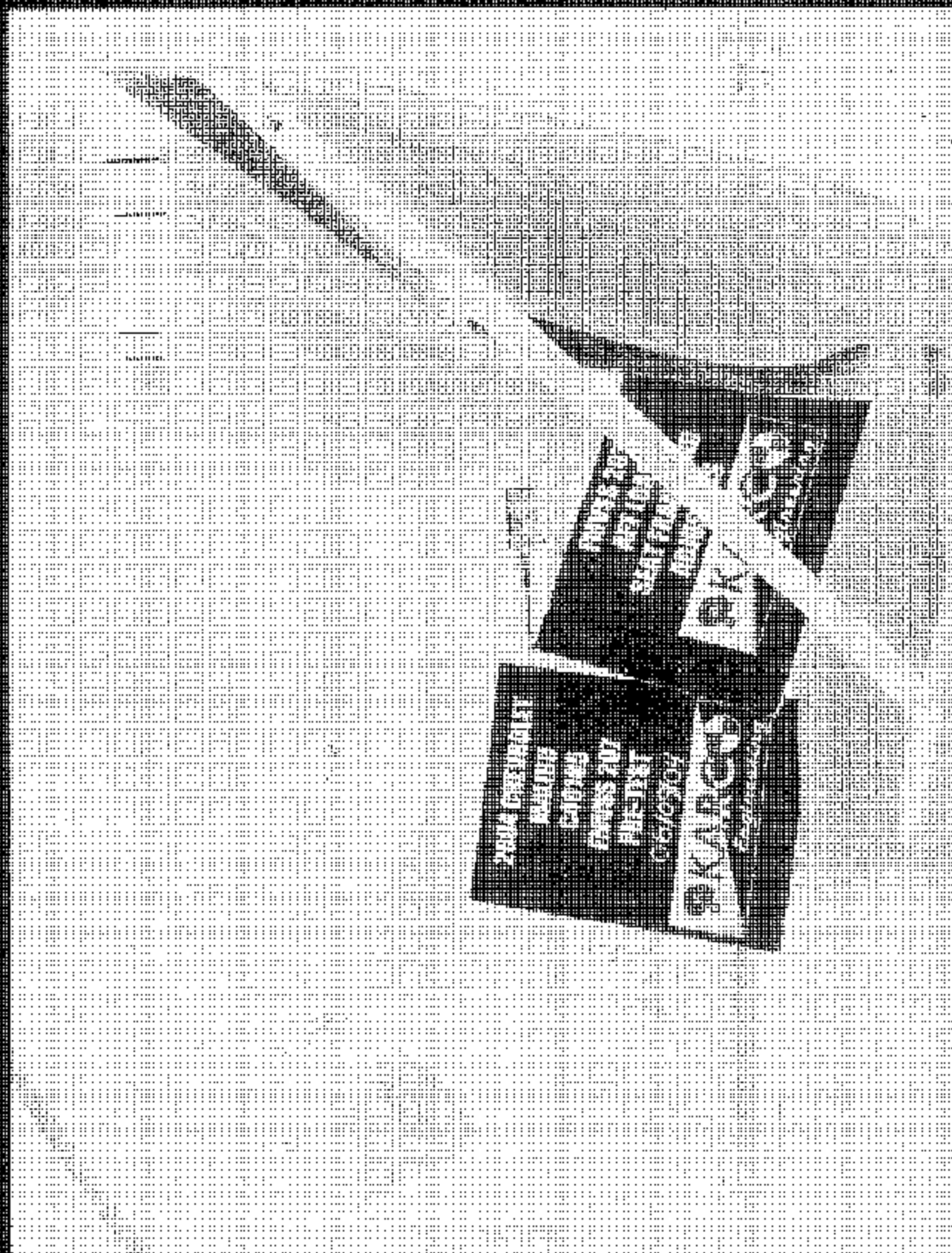


Figure A-15. Aerial view of South Pass and the Ogallala River, 1930s.

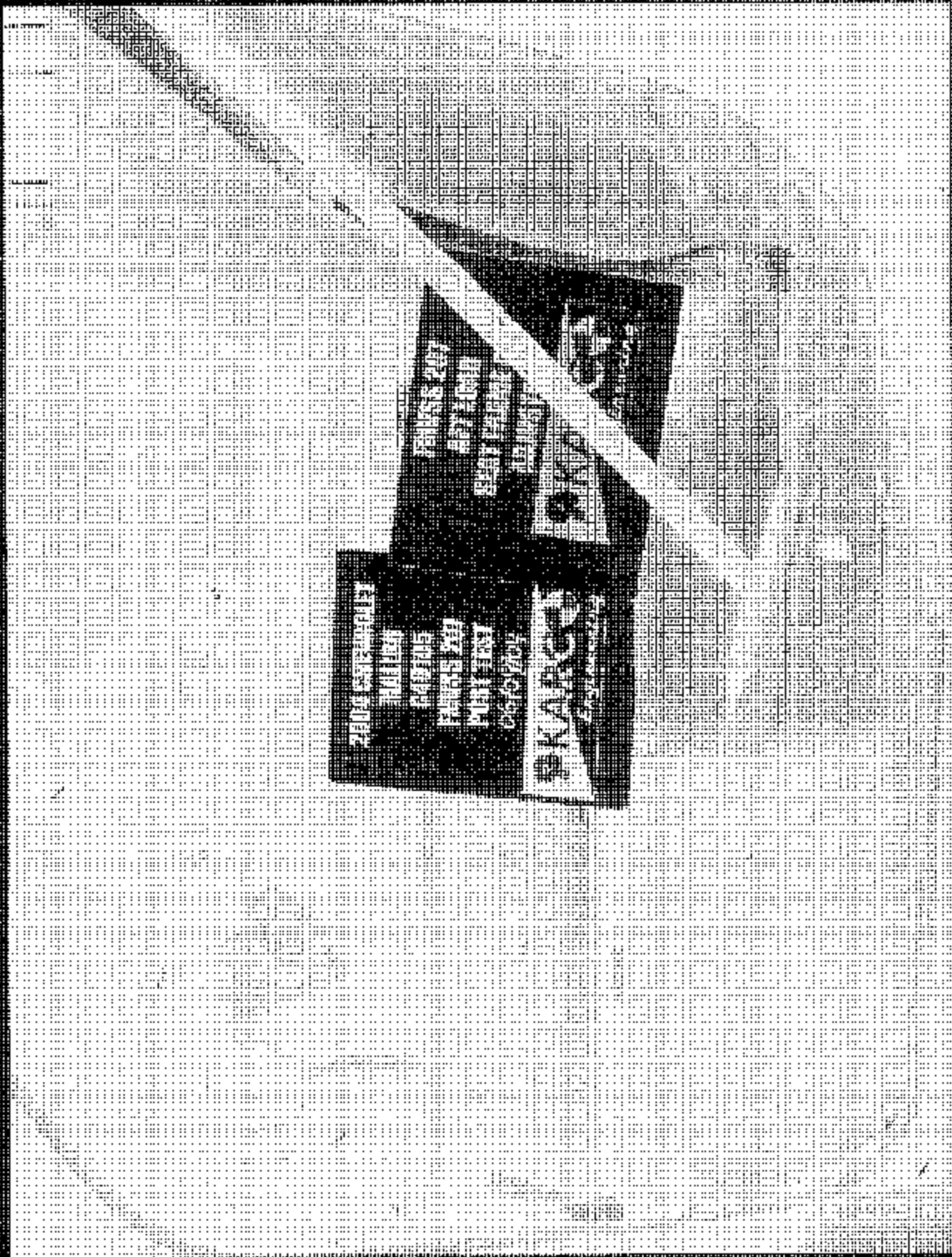
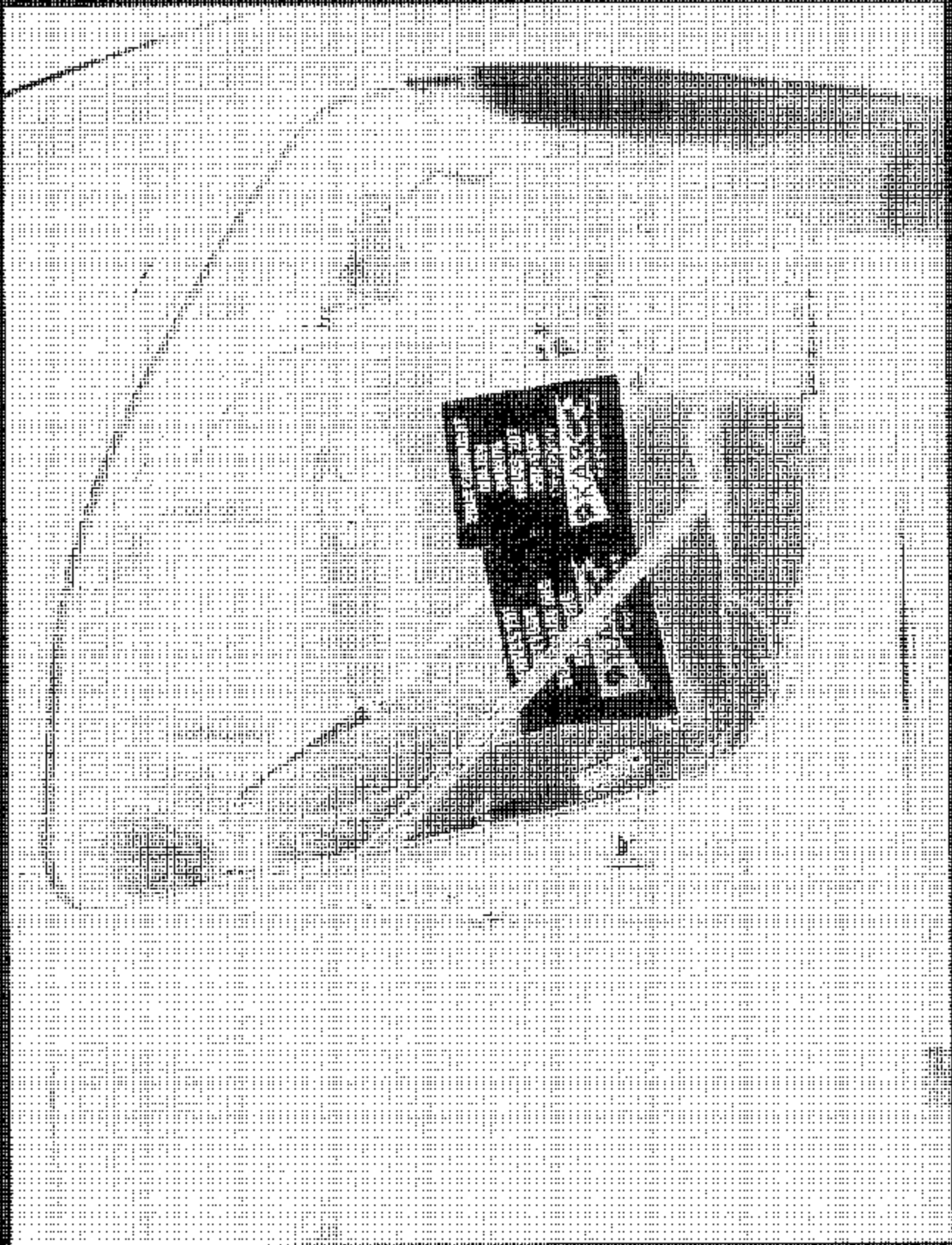


Figure A-16: Att Lead on Sept Frame and Adjusters, Driver's Side, Post-Test



1999年4月17日在華盛頓特區國會山莊舉行的聽證會

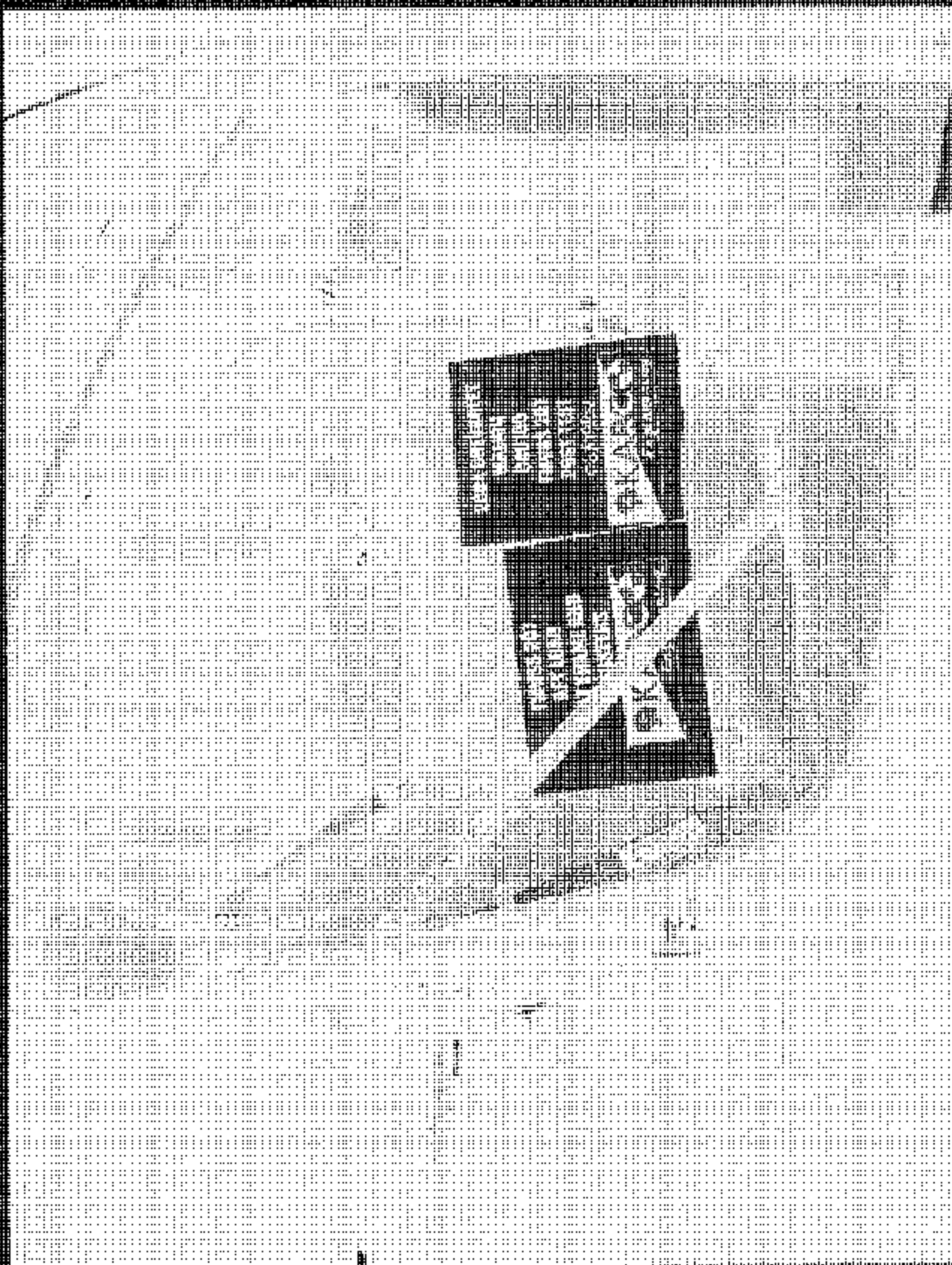
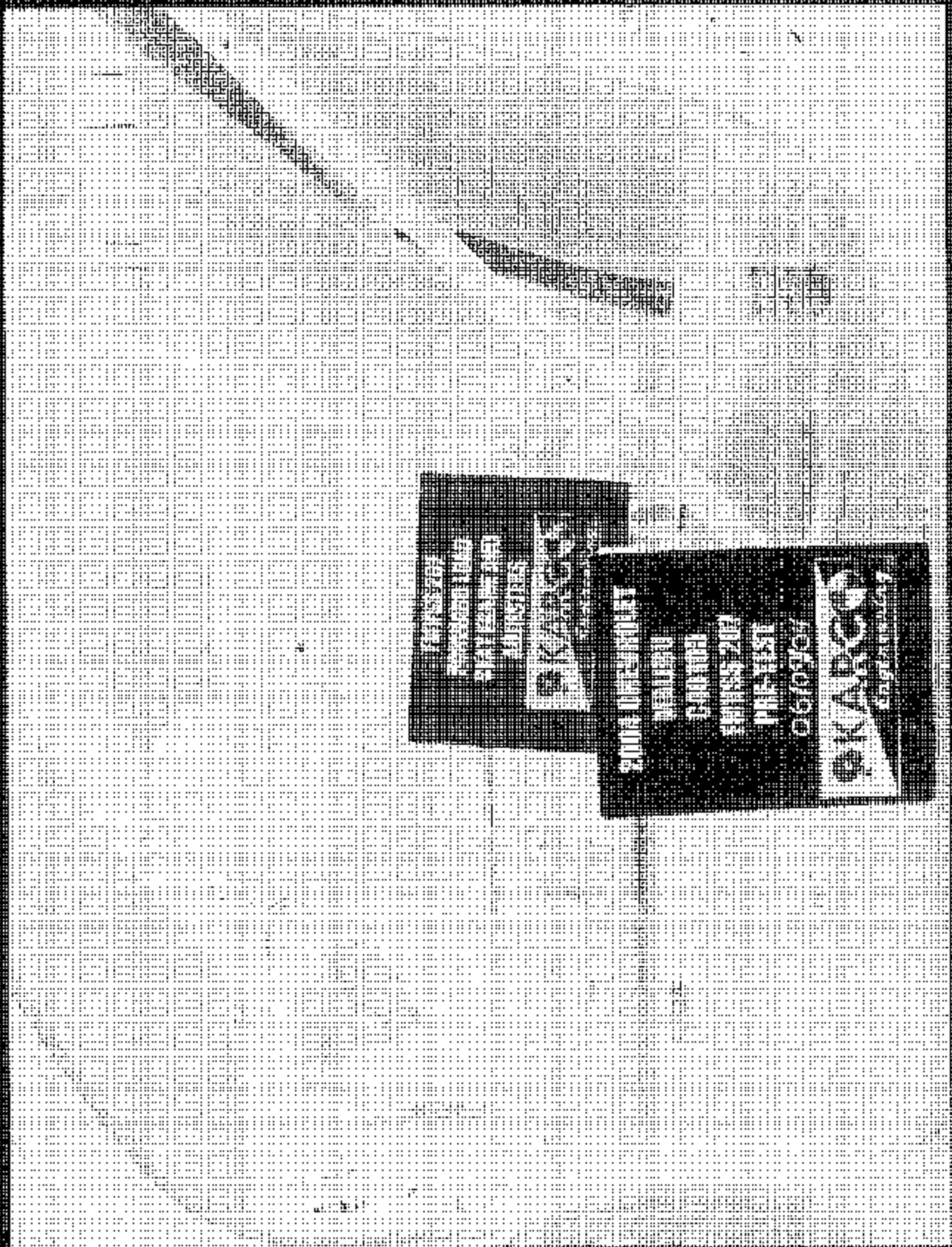


Figure A-15. All Load on Starboard Frame and Adjacent, Passenger Side, Mast-Tail



1501-1505, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 218

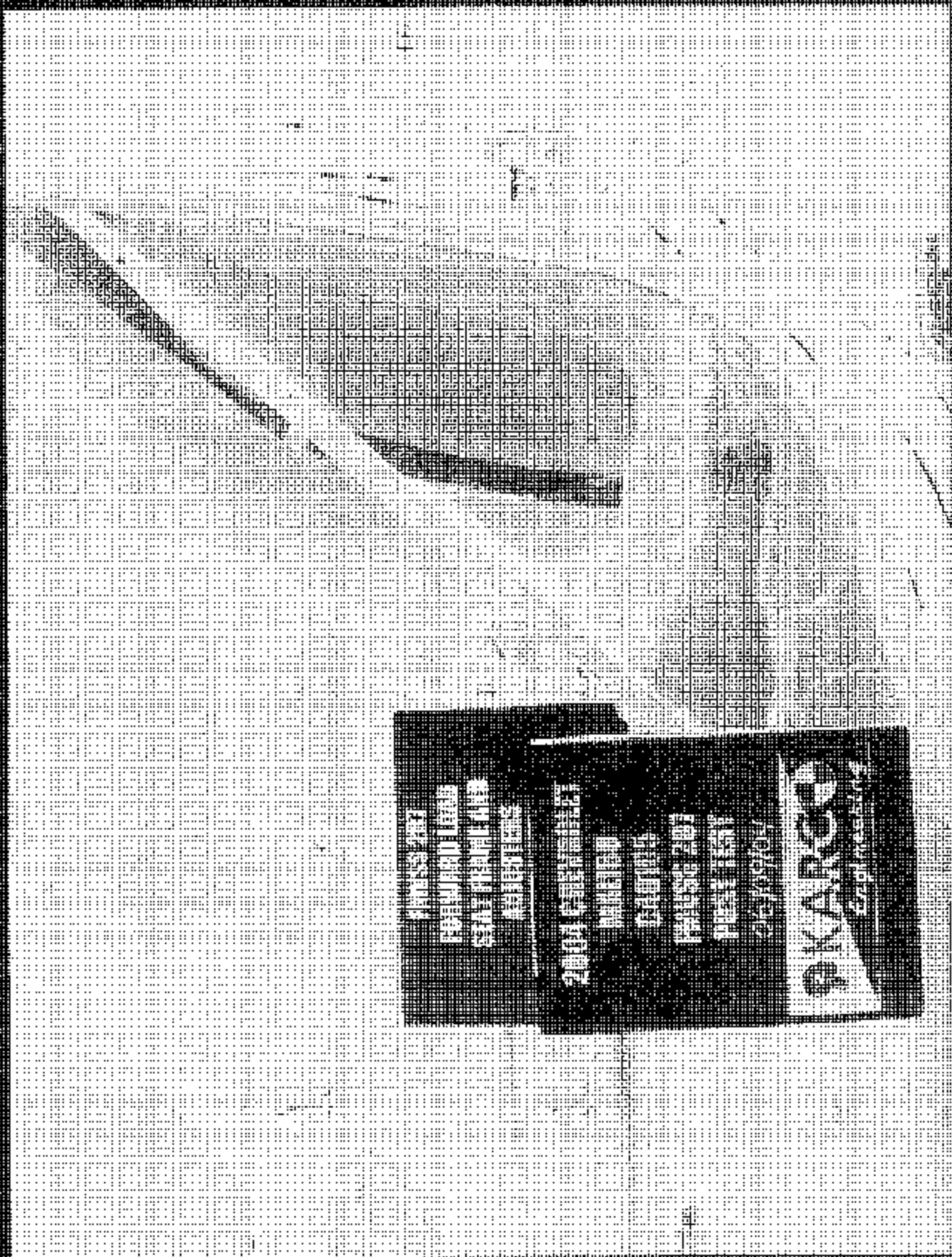


Figure A-20. Forward Load on Seal Frame and Adjusters, Driver's Side, Post-Test



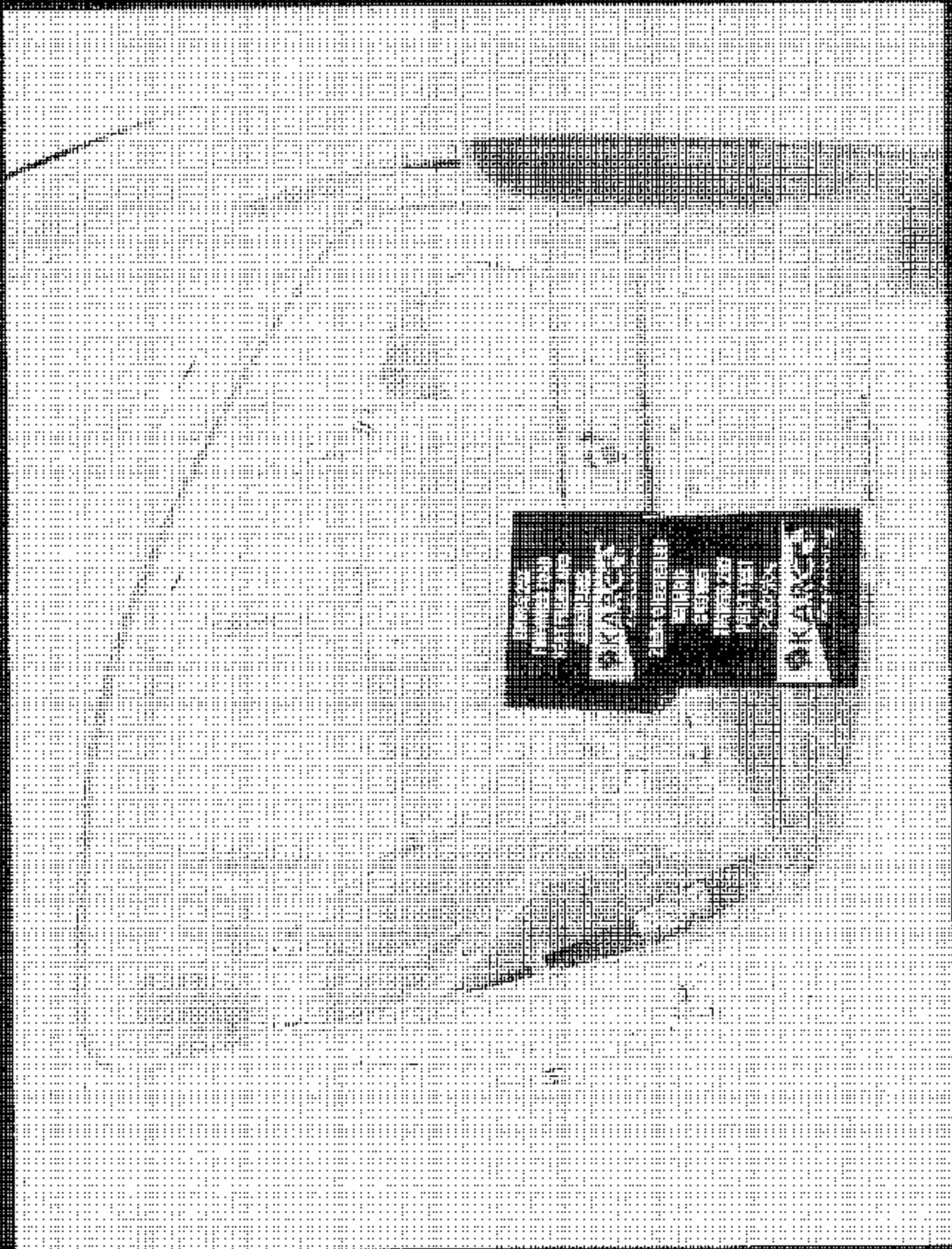


Figure A-22 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

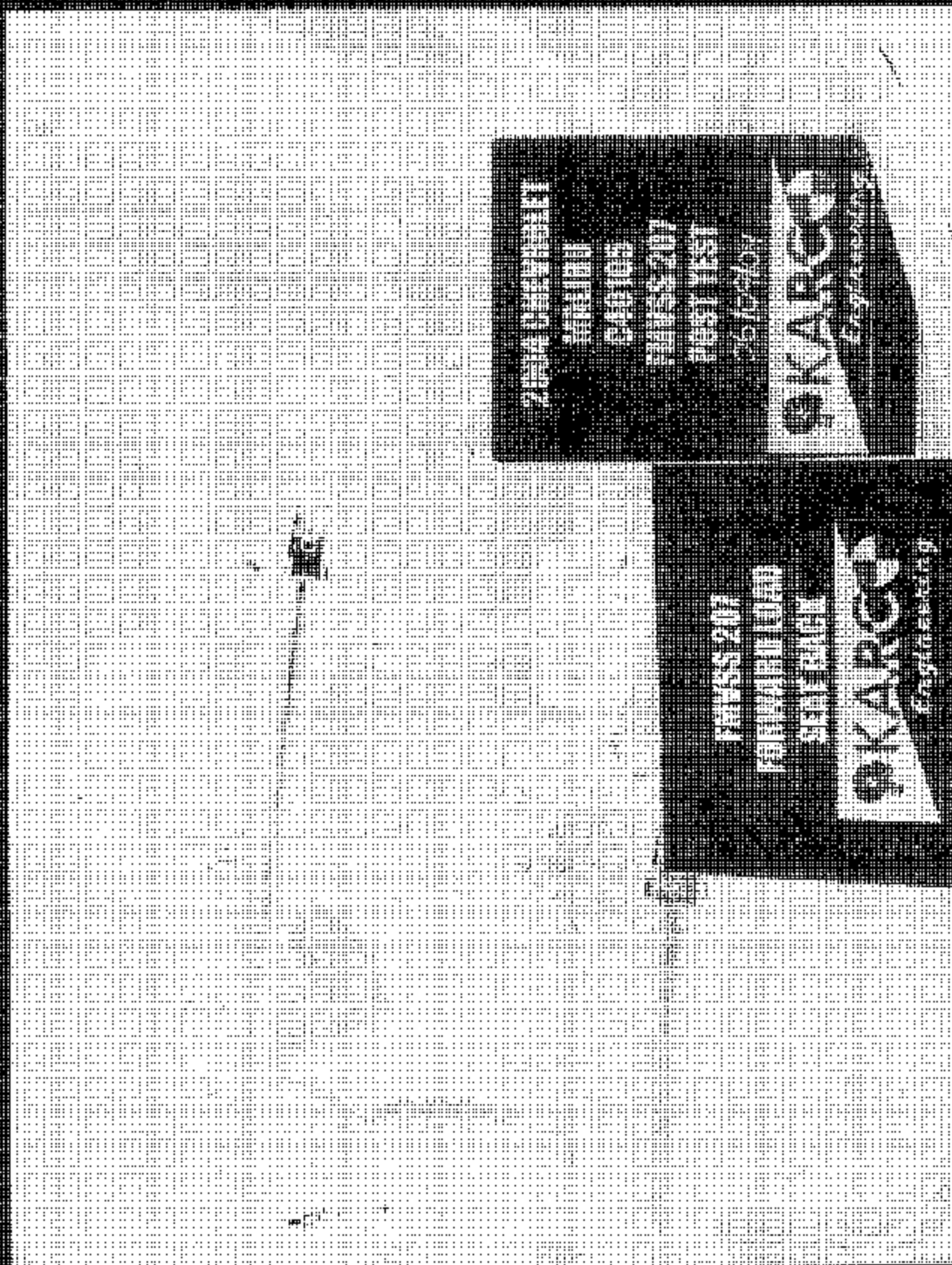


Figure A-24. Forward Load on Passenger's Seat Back, Driver's Side View, Post-Test

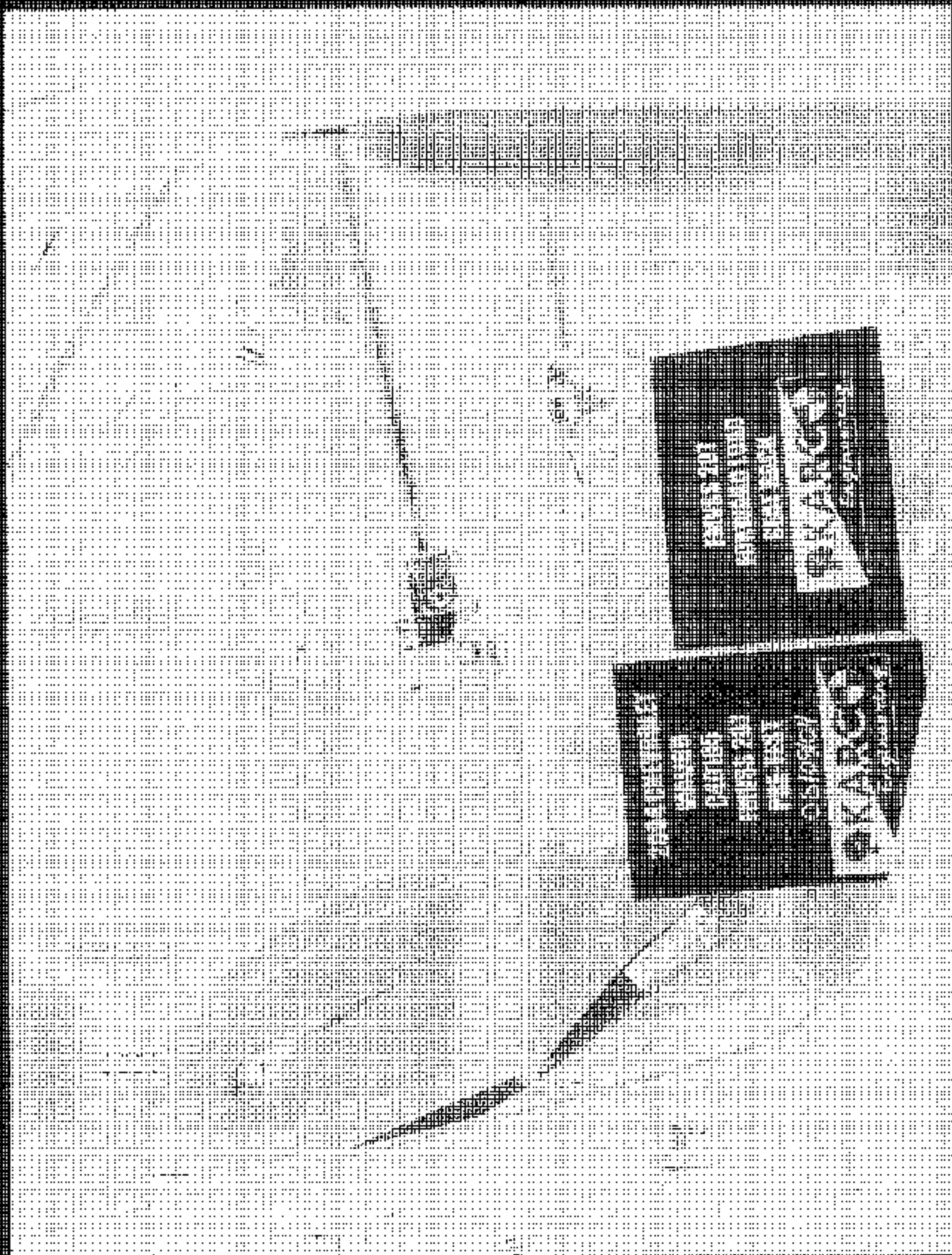


Figure A-25: Forward Look on Passenger's Seat Back, Passenger's Side View, Pre-Test

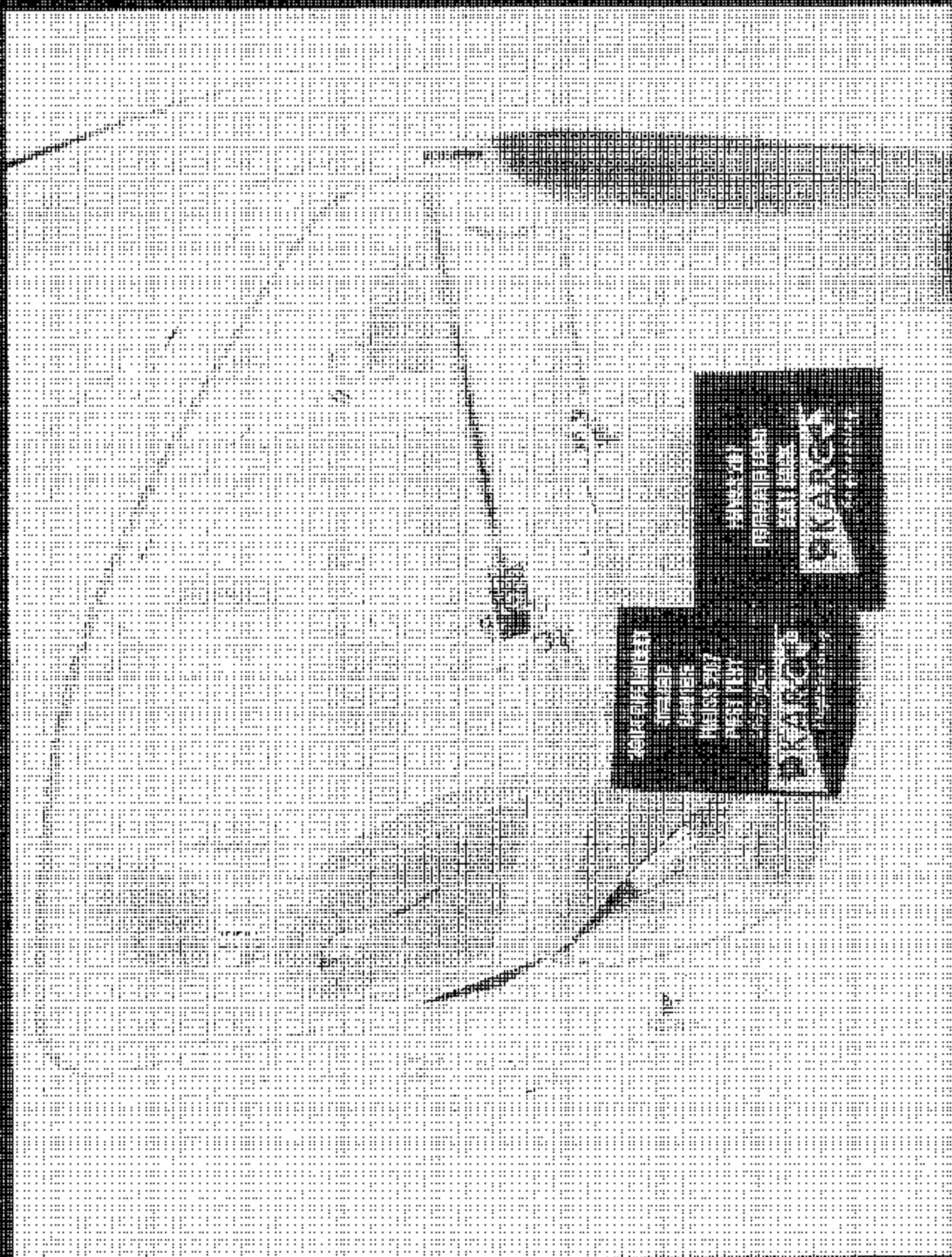


Figure A-26: Forward Load on Passenger's Seat Back, Passenger's Side View, Post-Test



Figure A-27: 207/240 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test



Figure A-26: 2017/2018 Forward Lead and Seal Frame and Adjusting Drivers Seat, Post Test



Figure A-25: 207/210 Forward Lead on Seat Frame and Adjustors: Driver's Side, Pre-Fat

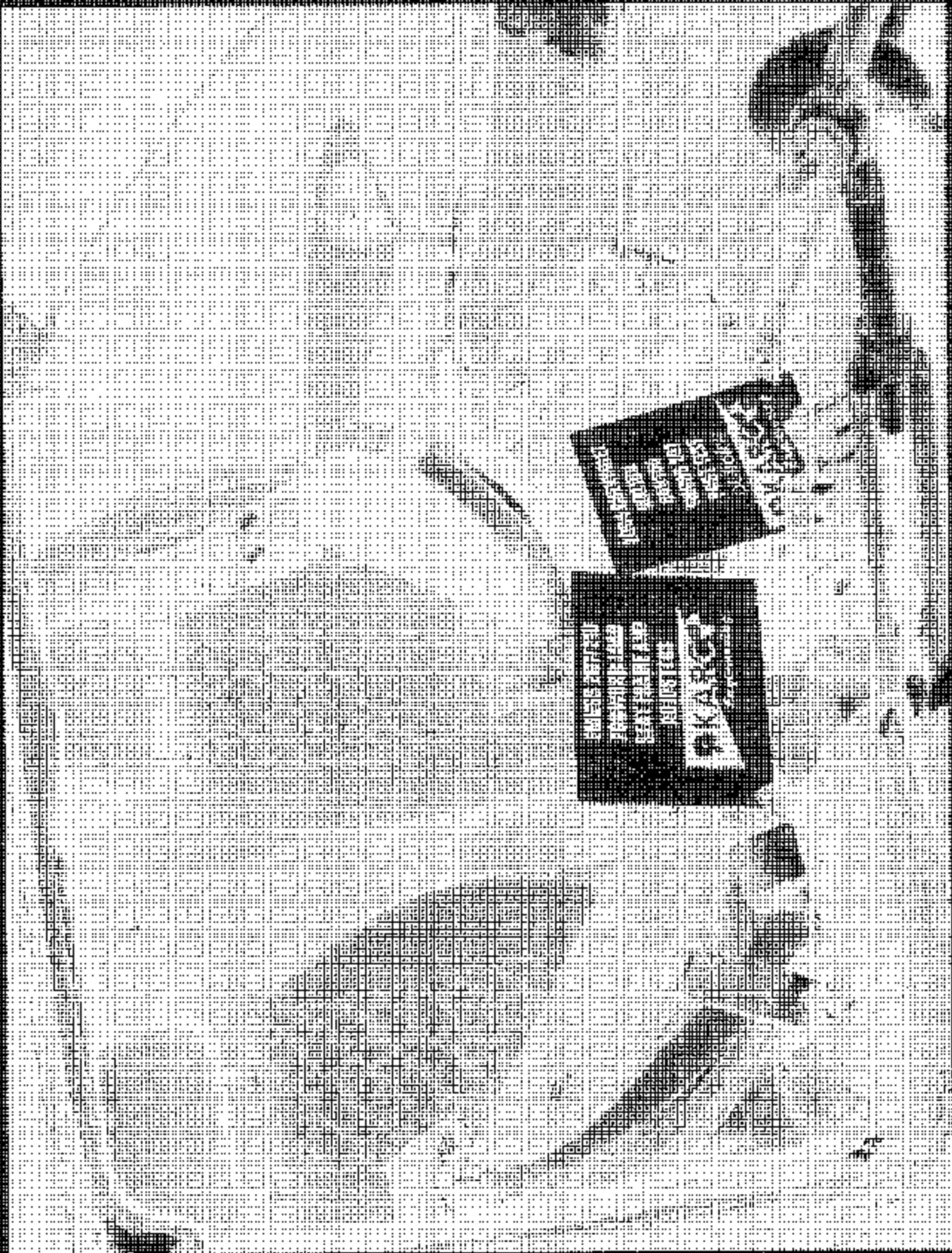


Figure A-30 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

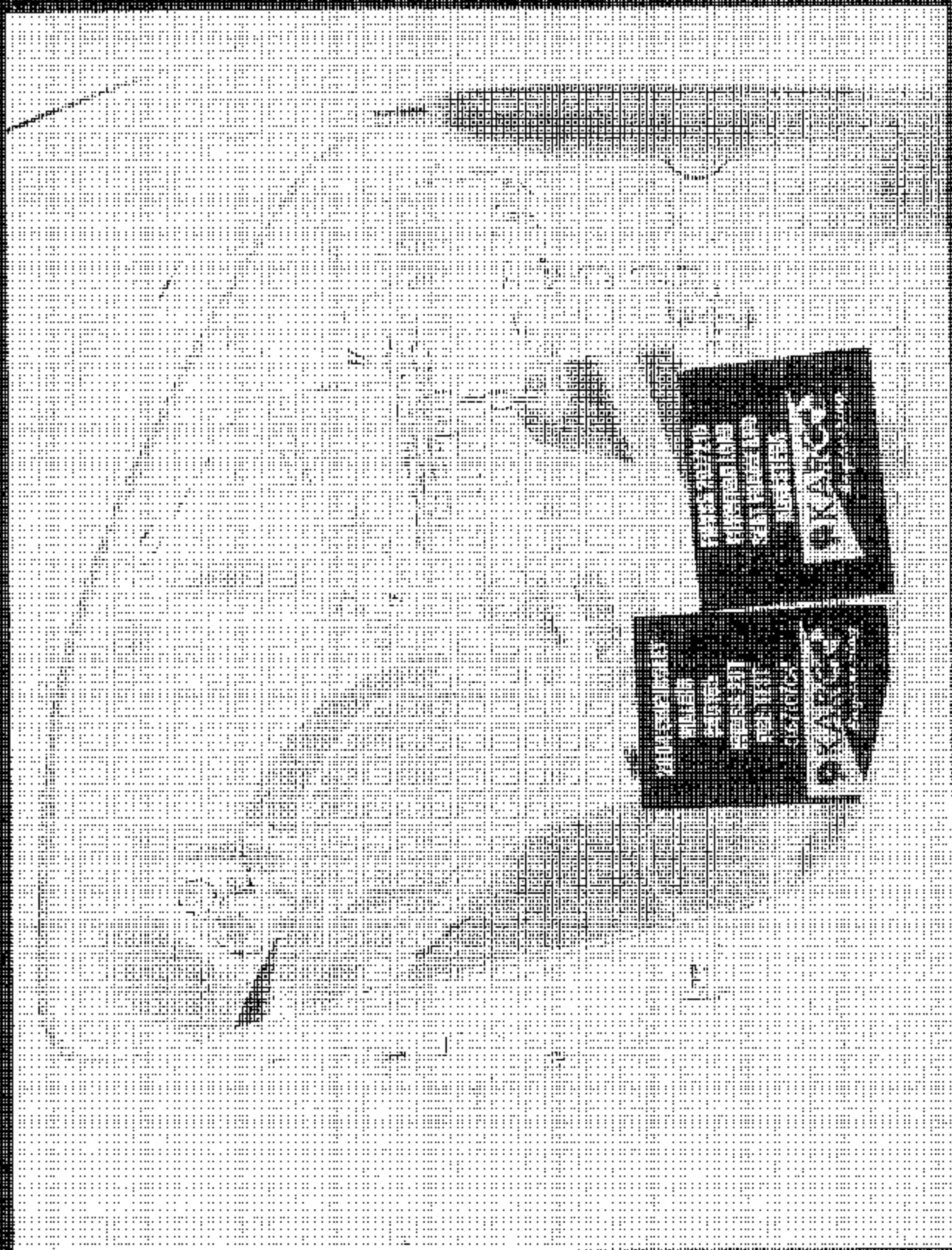


Figure A-31. 2072210 Forward Load on Seat Frame and Adapters, Passenger's Side, Pre-Test

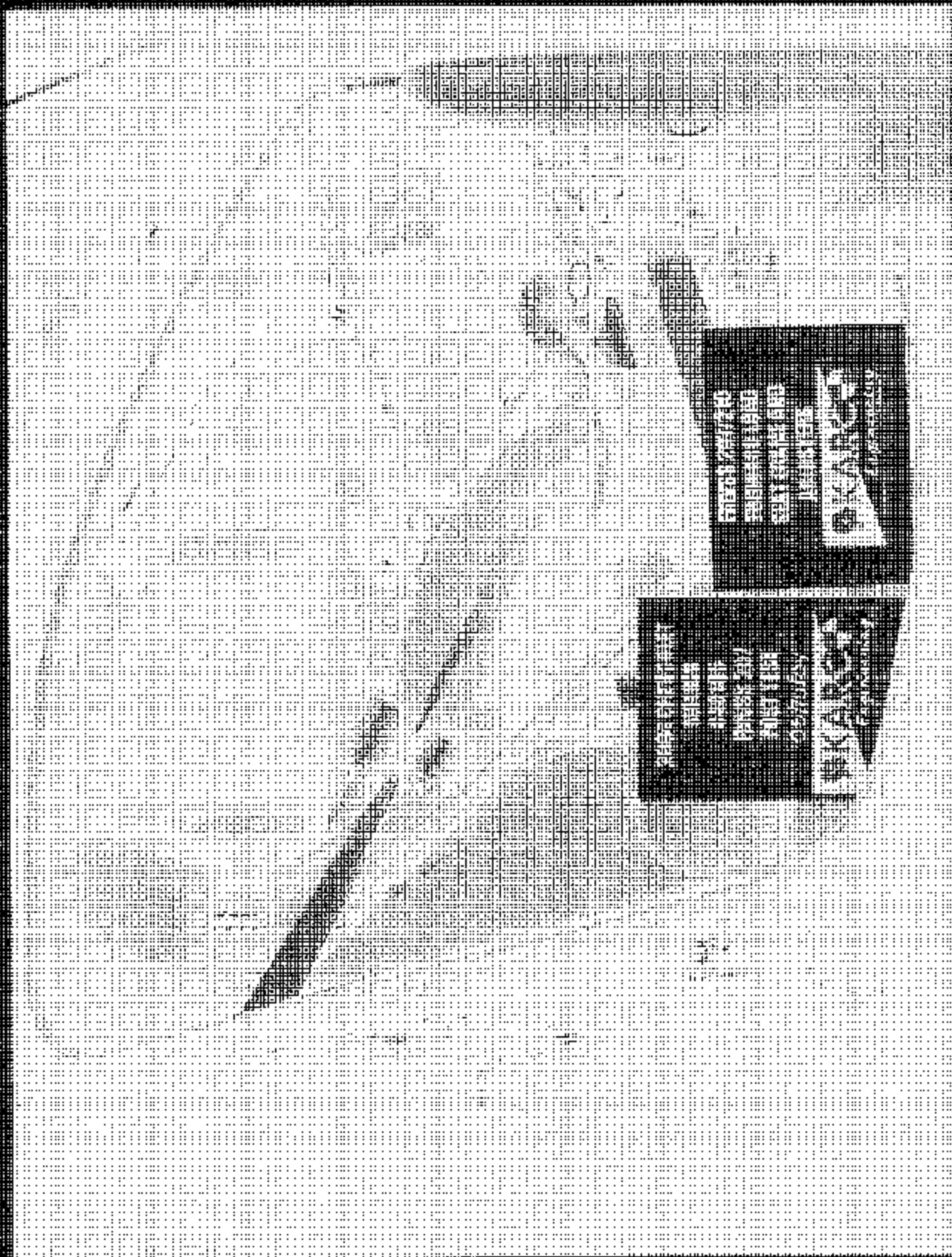


Figure A-52: 2012/16 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test



Figure A-33: 207/210 Forward Load on Sub; Frame and Adjusters; Passenger's Side, Pre-Test



Figure A-34: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test



Figure A-35: Aft Load on Seat Frame, Driver's Side Rear, Aft View

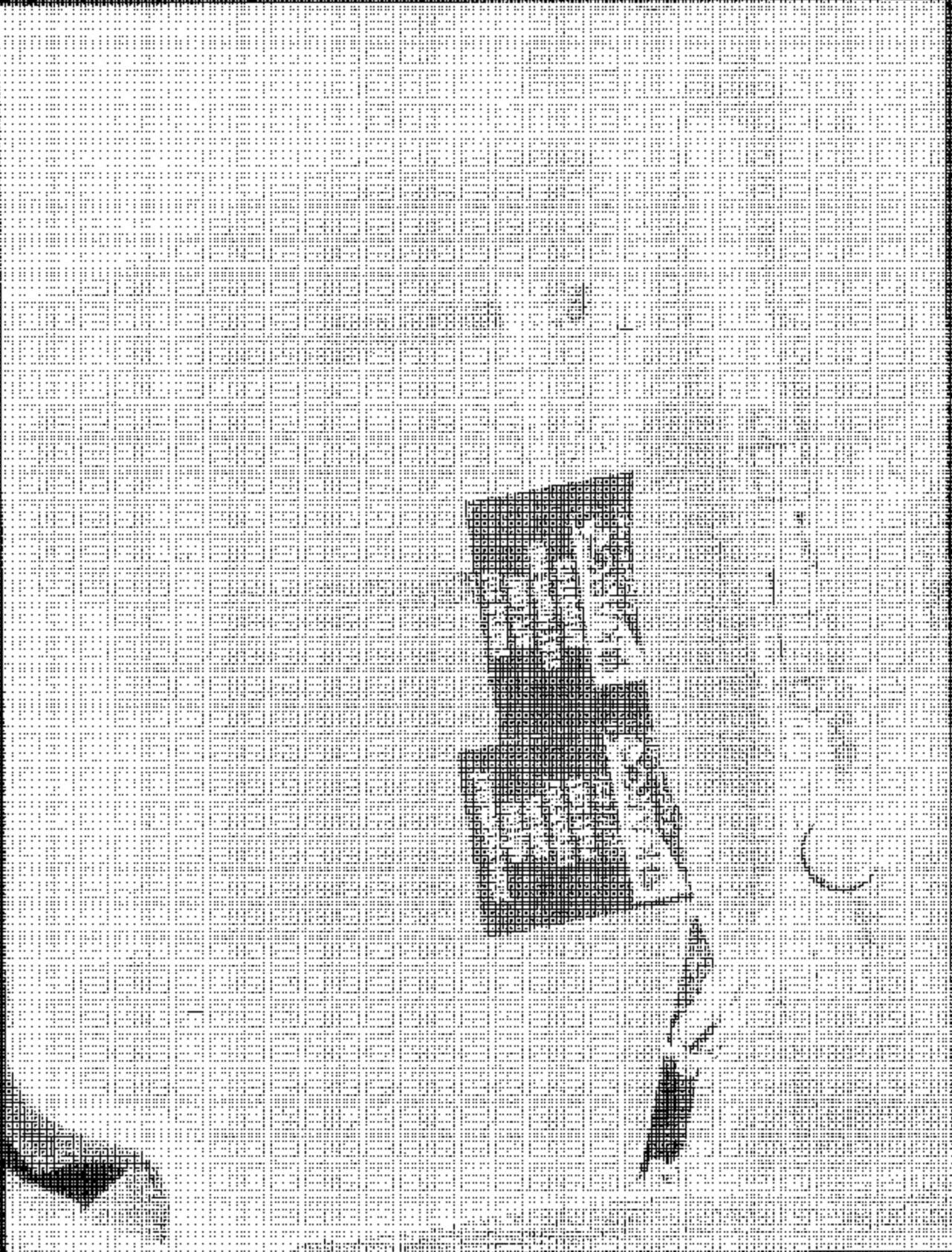
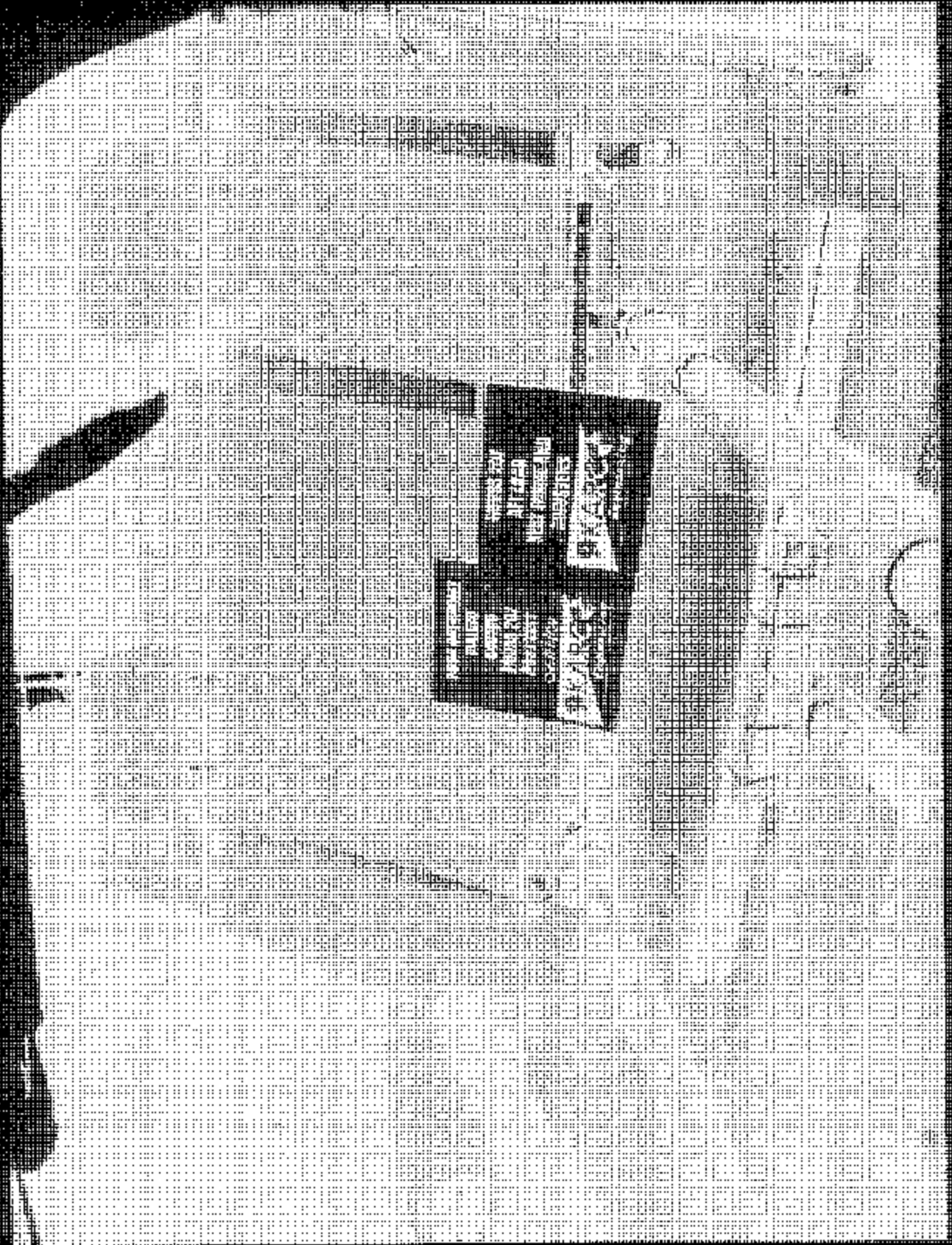


Figure A-5b: All Load on Goal Frame, Drivers Side Rear Post-Test



Figure A-37: Aft Load on Seal Frame, Passenger's Side Rear Pre-Test



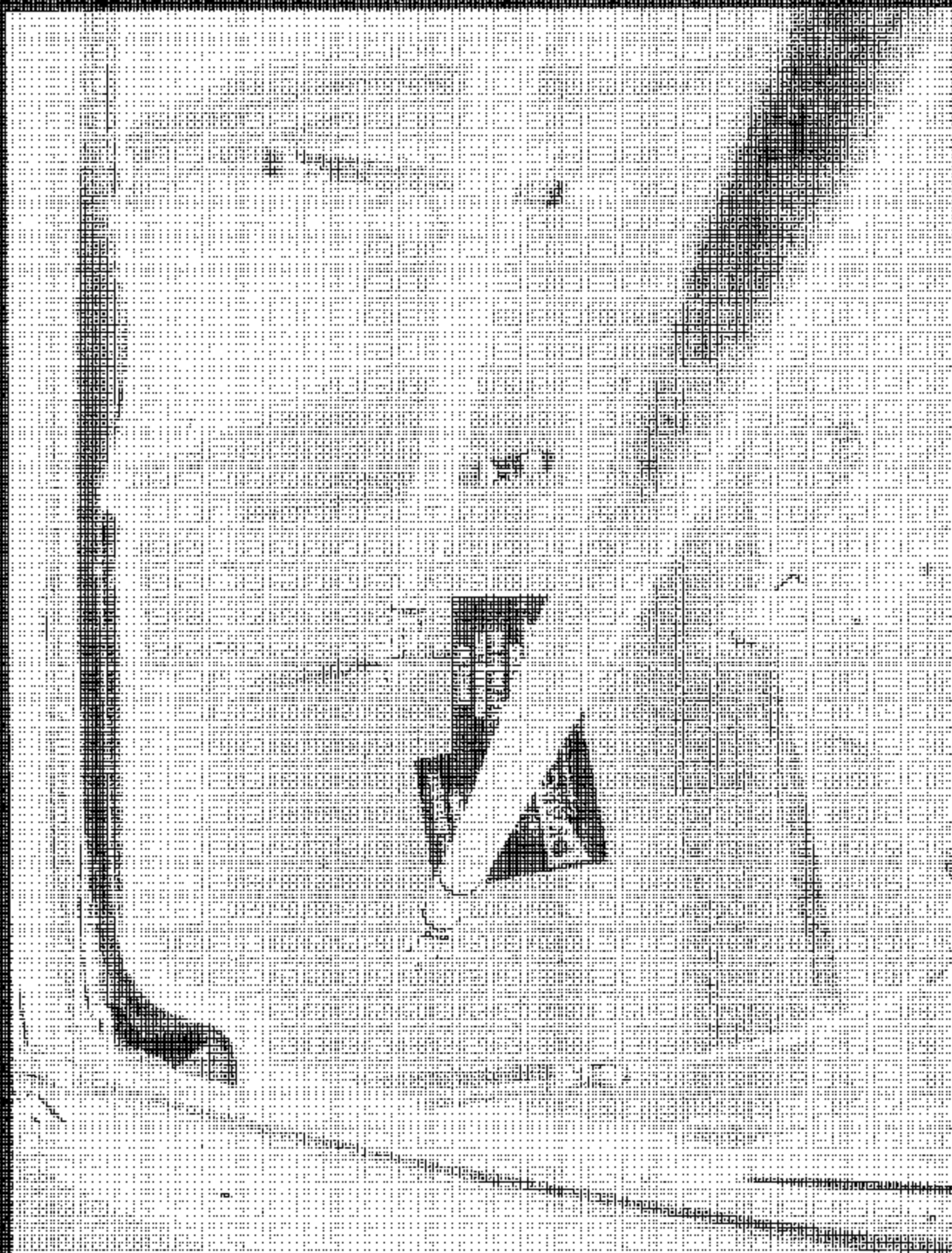


Figure A-38: Forward Load on Seat Frame, Driver's Side Rear, Pre-Test

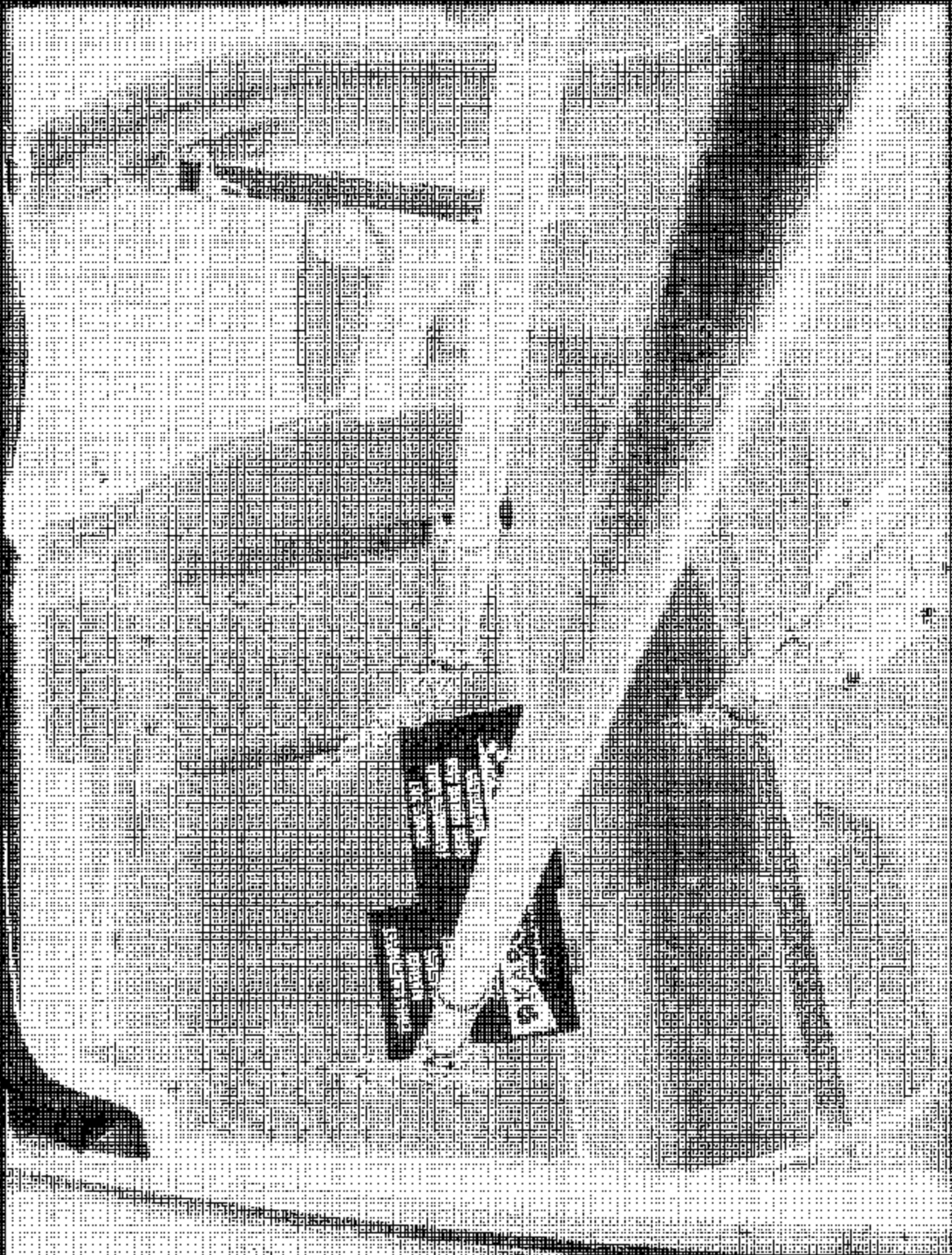


Figure A-10. Forward Load at Seal Frame, Driver's Side Rear, Post-Test

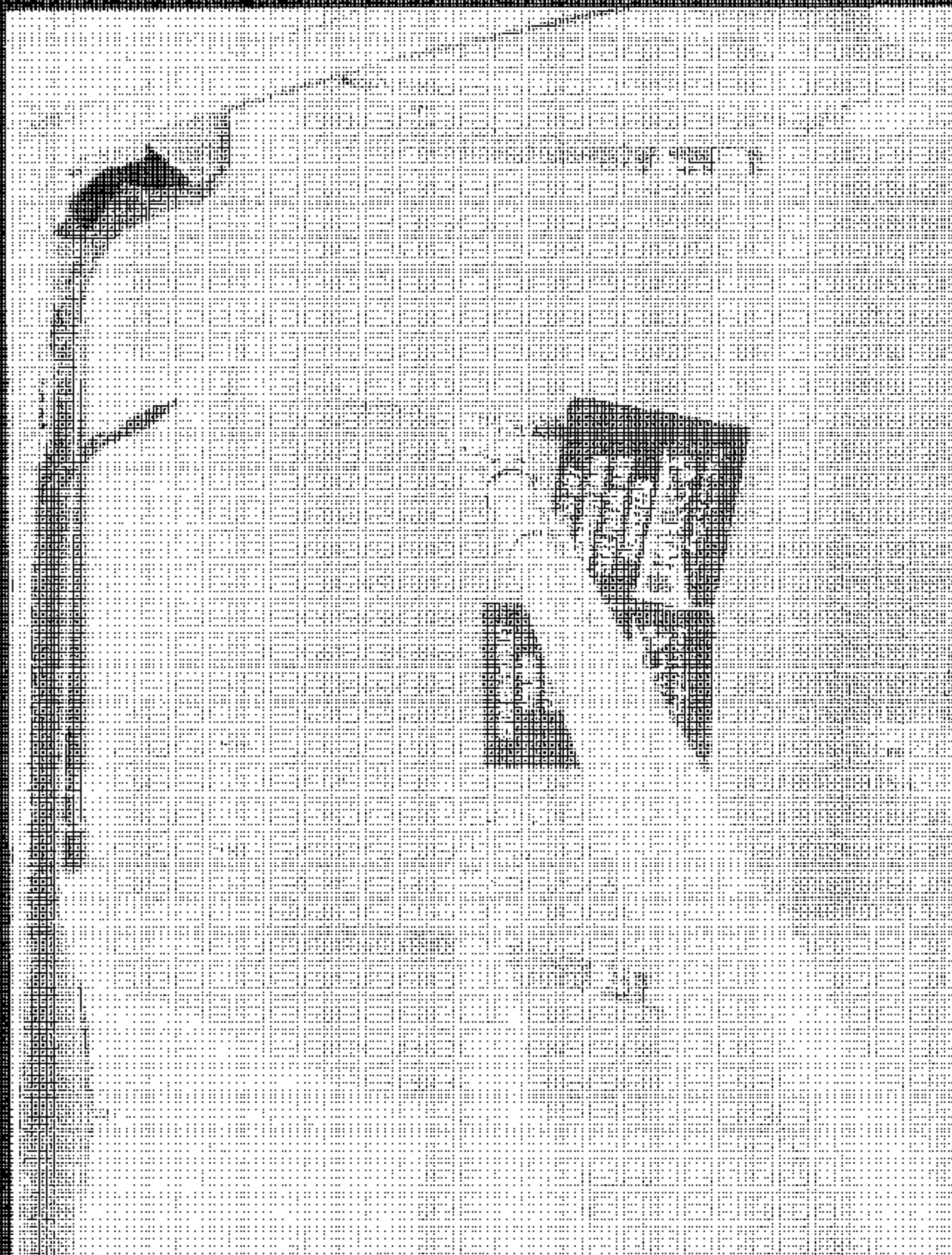


Figure A-1: Forward Load on Seat Frame, Passenger's Side Rear, Pre-Test

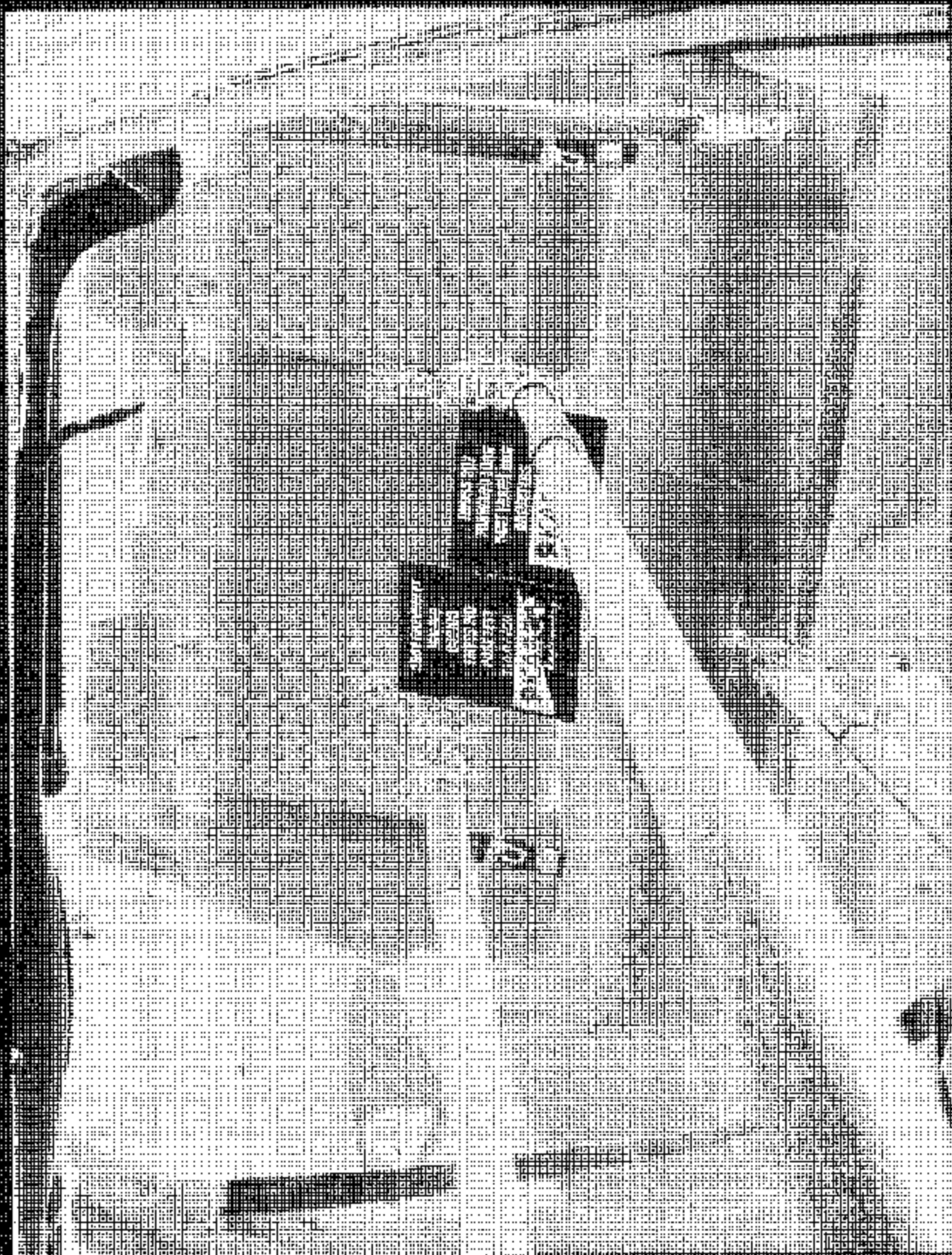


Figure A-42: Forward Load on Seat Frame, Passenger's Side Rear, Post-Test

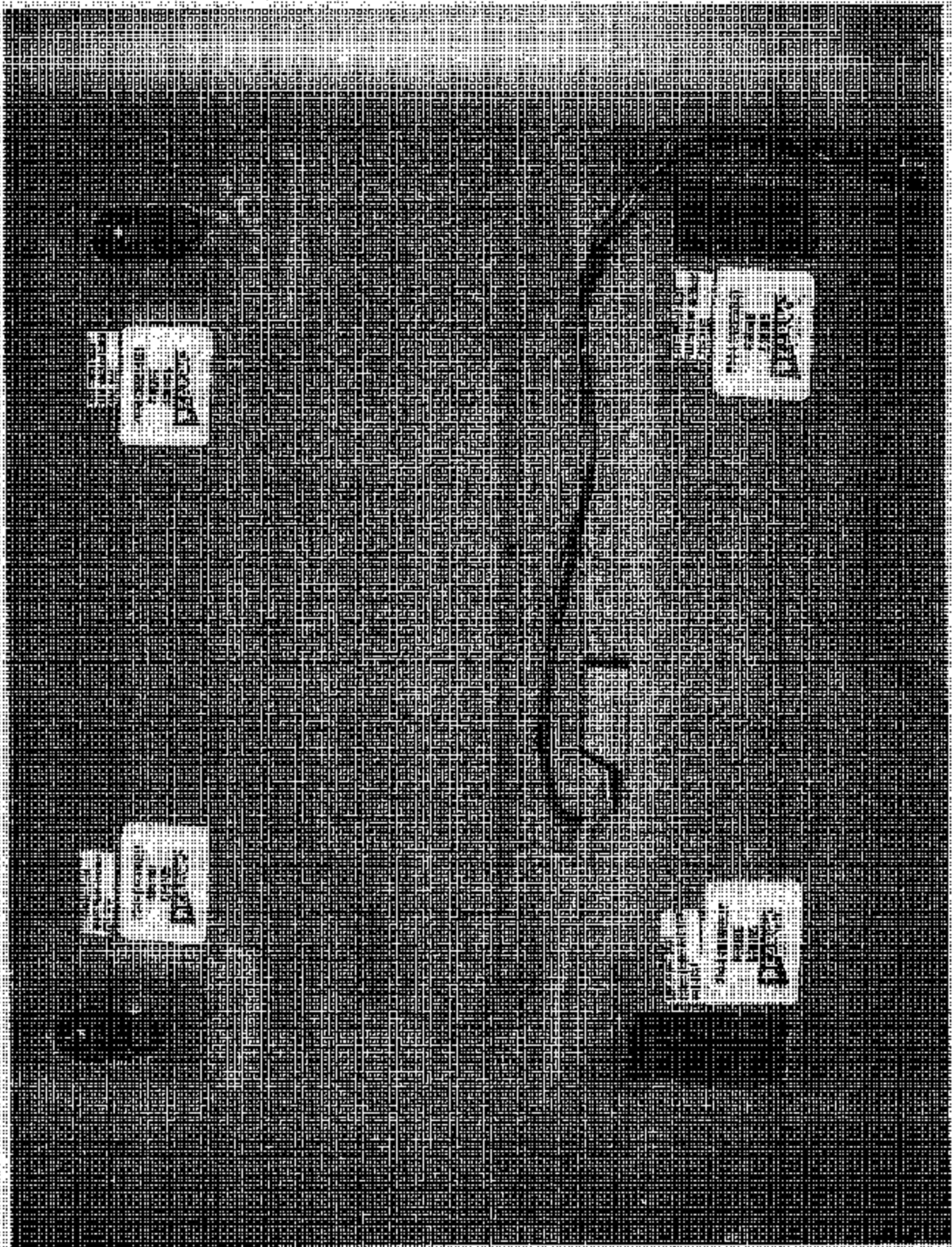


Figure A-43: Floor Pan Anchors, Left Front Seat Overall: Pre-Test

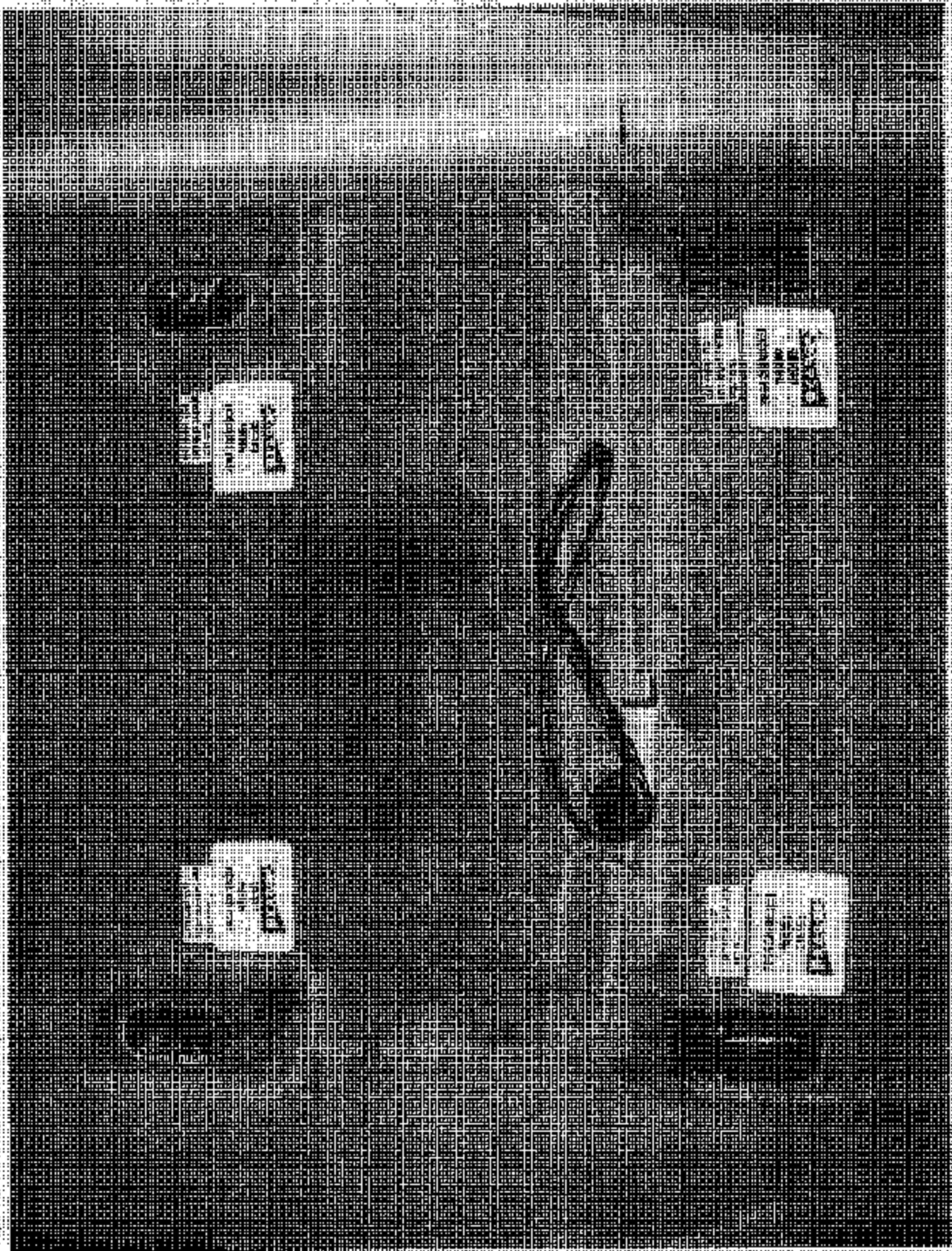


Figure A-44: Floor Pan Anchors, Left Front Seal Overlay, Plug Test

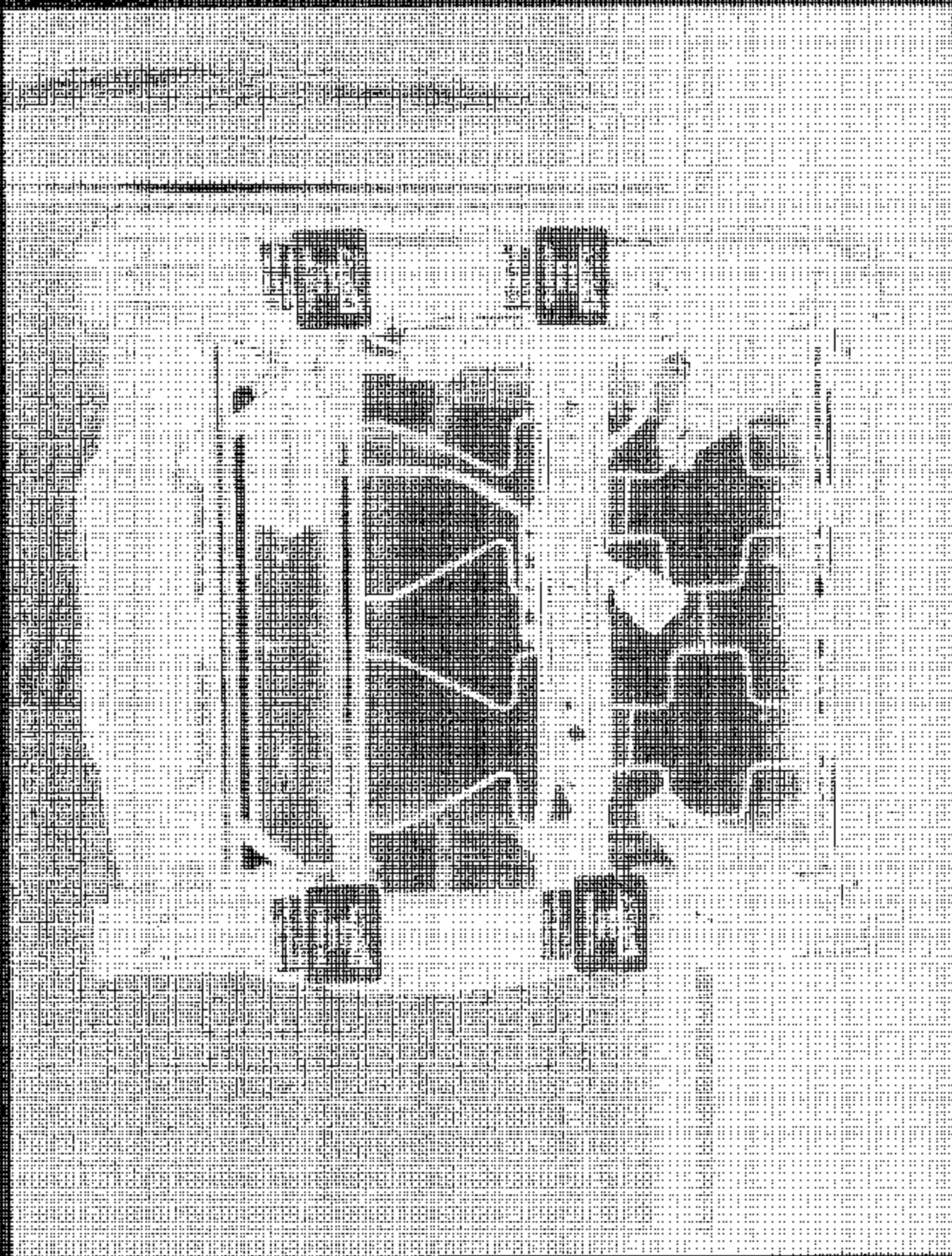


Figure A-45: Seat Anatomy, Left Front Seat Overall Pre-Test

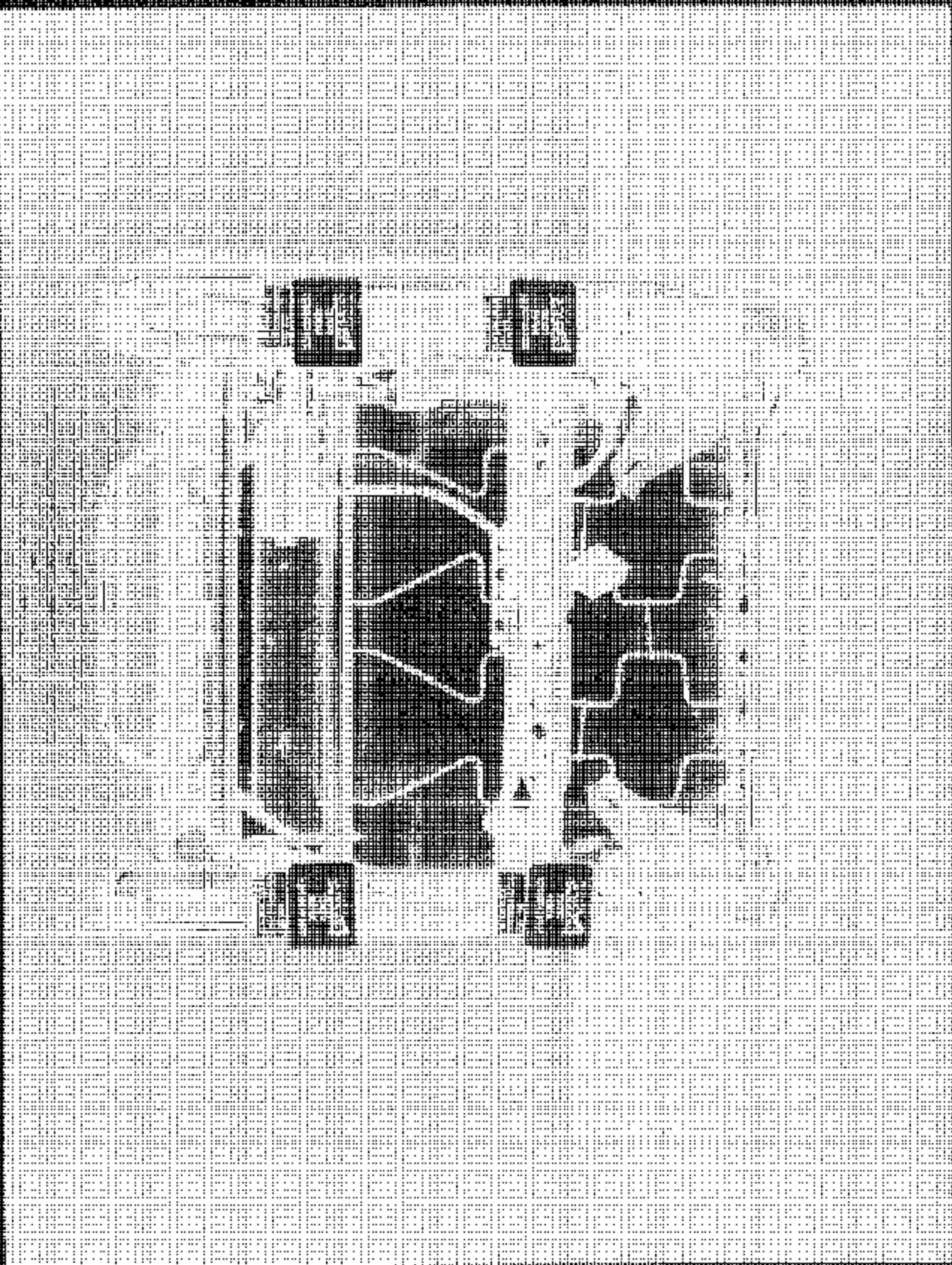


Figure A-46: Seat Anchors, Left Front Seat Overall, Publ-Test

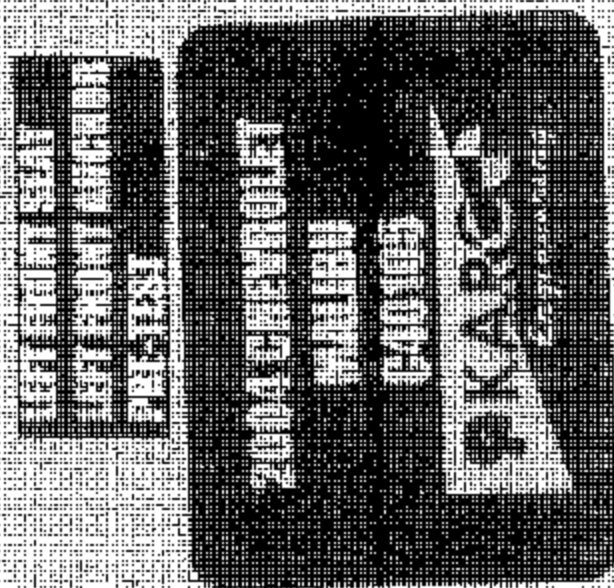


Figure A-17 Floor Pan Anchor, Left Front Seat, Pre-Test



Figure A-4.1. Foot Pad Anchor, Left Front Seat, PostType:



Figure A-49. Buick Anchor, Left Front Seat, Pre-Treat

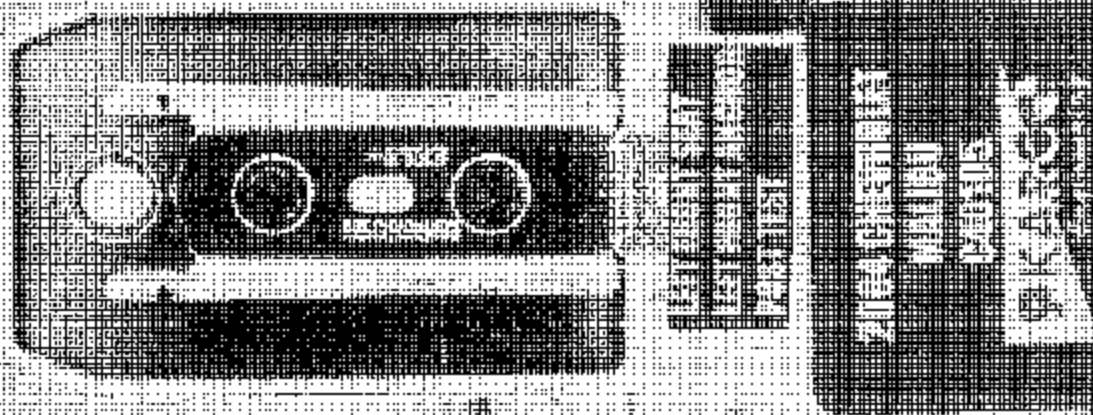


Figure A-40. Seat Anchor, Left Front Seat, Post Rest

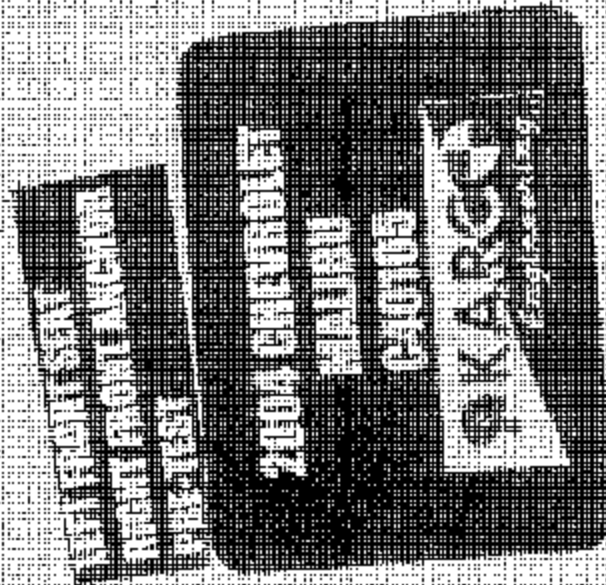


Figure A-5: Rear View Ancher, Left Front Seal, Pro-Test

UNITED STATES
NAVY
POST OFFICE
POST OFFICE

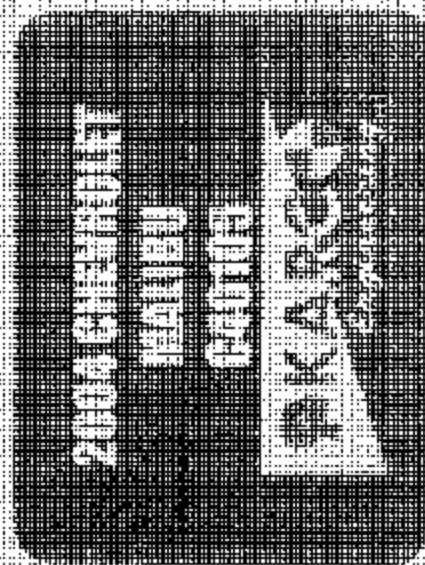


Figure A-52: Floor Plan Anchor, Left Front Seat, Post-Test

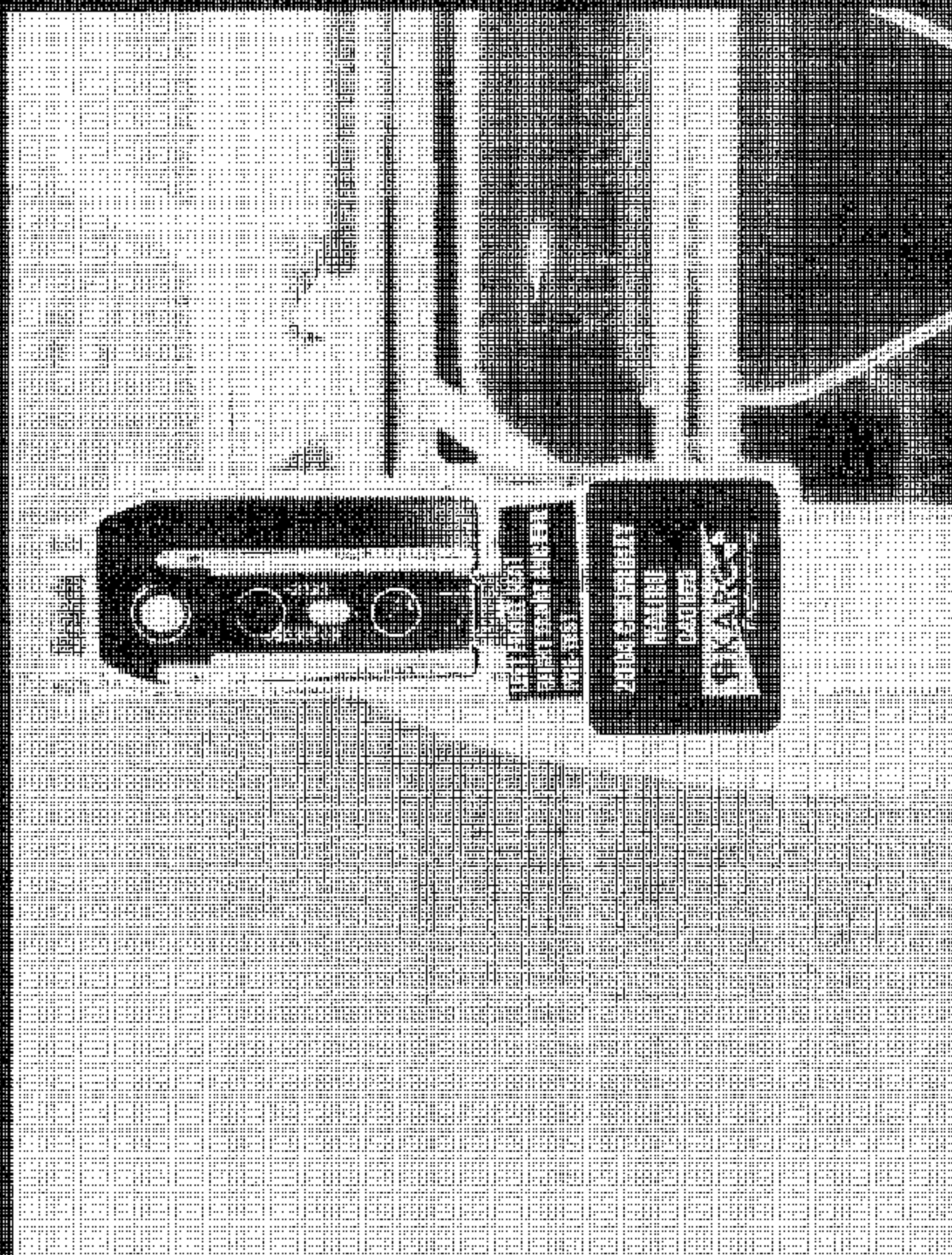


Figure A-53: Seas Anchor Left Front Seat, Pre-Test



FIGURE A-54 Seat Anchor, Left Front Seat, Post-Test

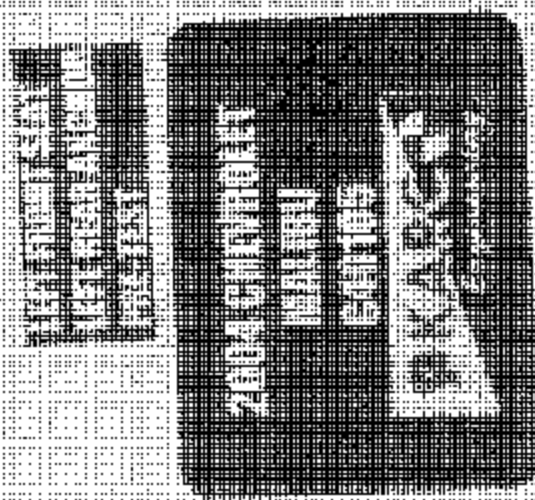


Figure A-55: Floor Pan Anchor, Left Front Seal, Pre-Test

2004 CONSTITUTION
FEDERAL GOVERNMENT
UNIT TEST

2004 CONSTITUTION
FEDERAL GOVERNMENT
UNIT TEST
PLEASE
SUBMIT

Figure A-56: Flag/Fair Anchor, Left Front Seal Post-Test



Figure A-7: Seal Andover, Left Front Seat, Pin-Tail



Figure A-55. Seat Anchor Location Seat Post Test

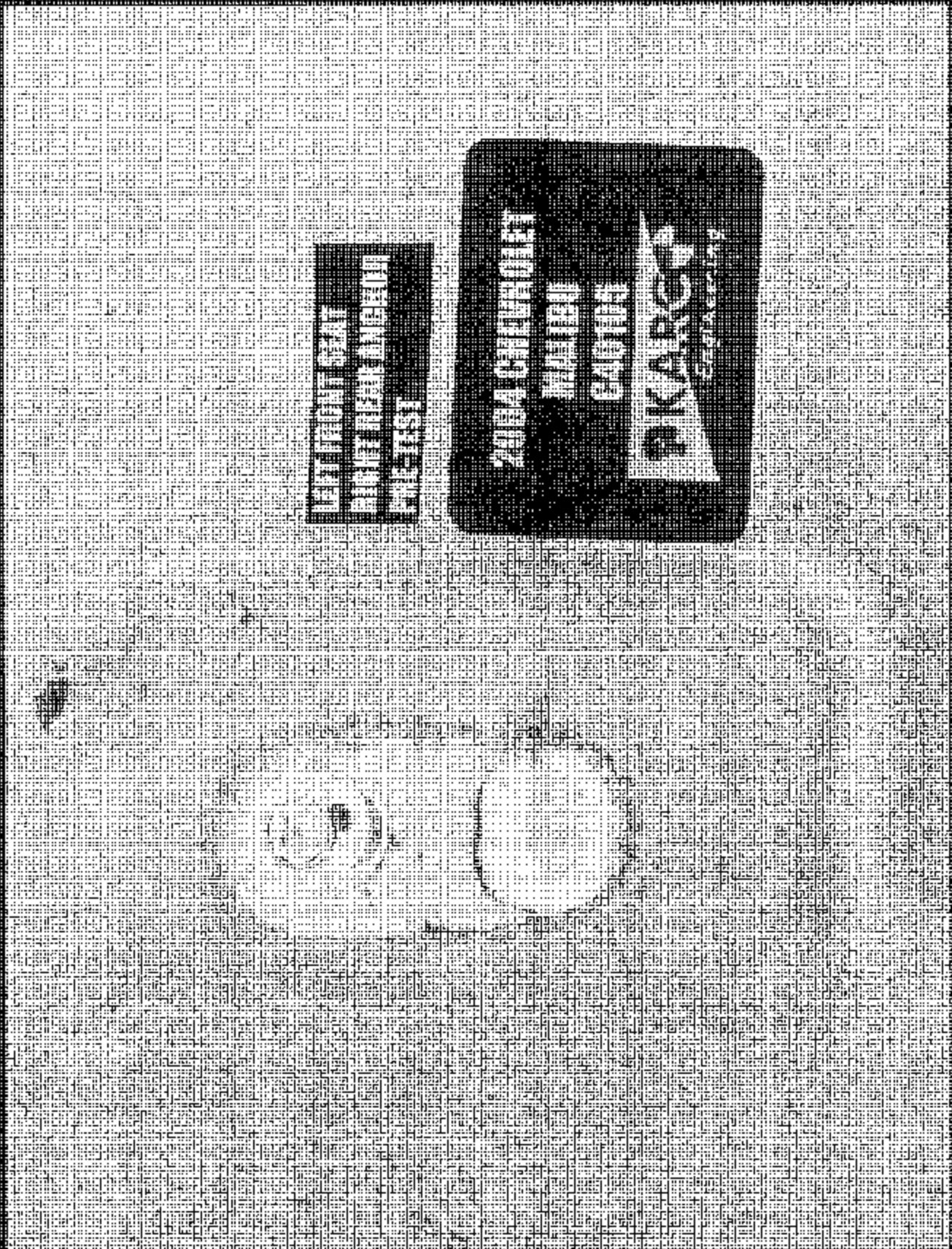


Figure A-59: Floor Pan Anchor, Left Front Seat, Fire-Test

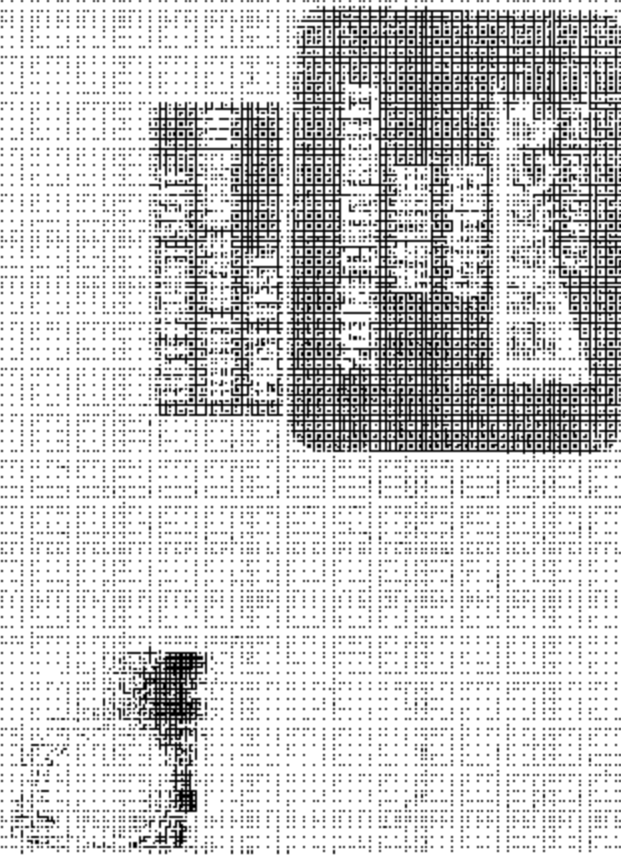


Figure A-66: Four-Pass Aerial, Left From Side, Position

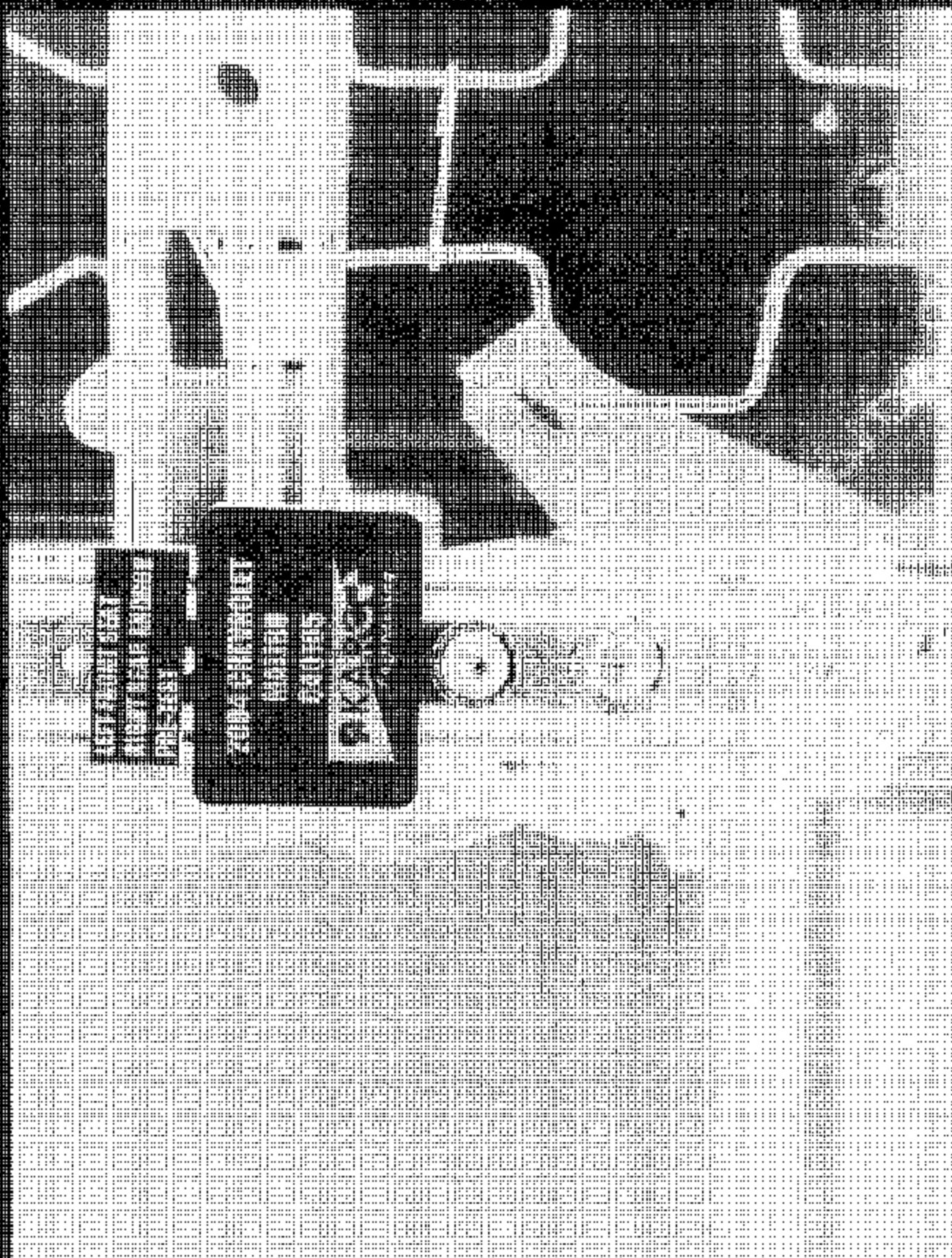


Fig. 1. A-61 Seat Aft/Left, Left Front Seat, Pw-Tot



Figure A-52 Seat Anchor, Left Front Seat Post Test

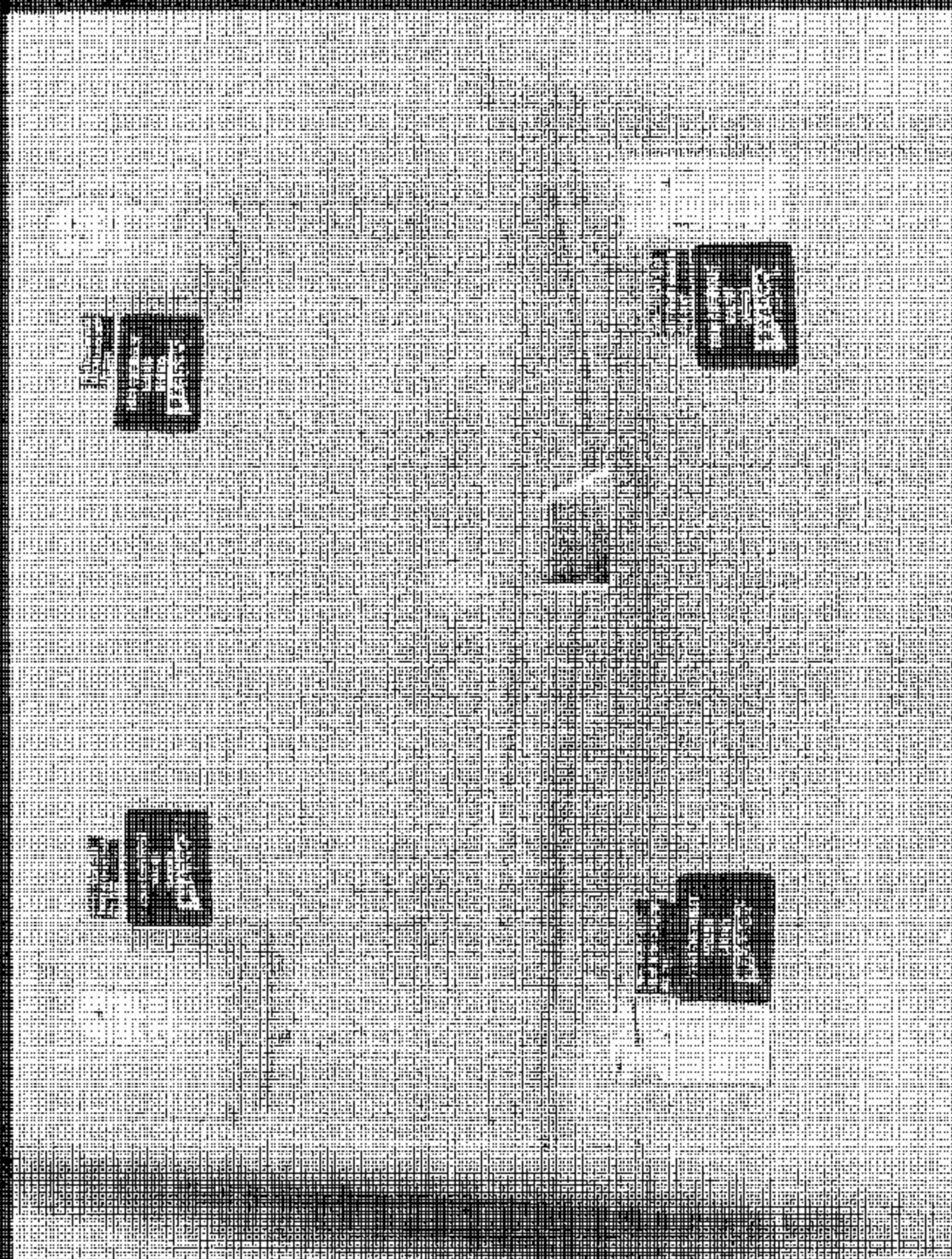


Figure A-83 Floor Pan Anchors, Right Front Seal Overall Pre-Test

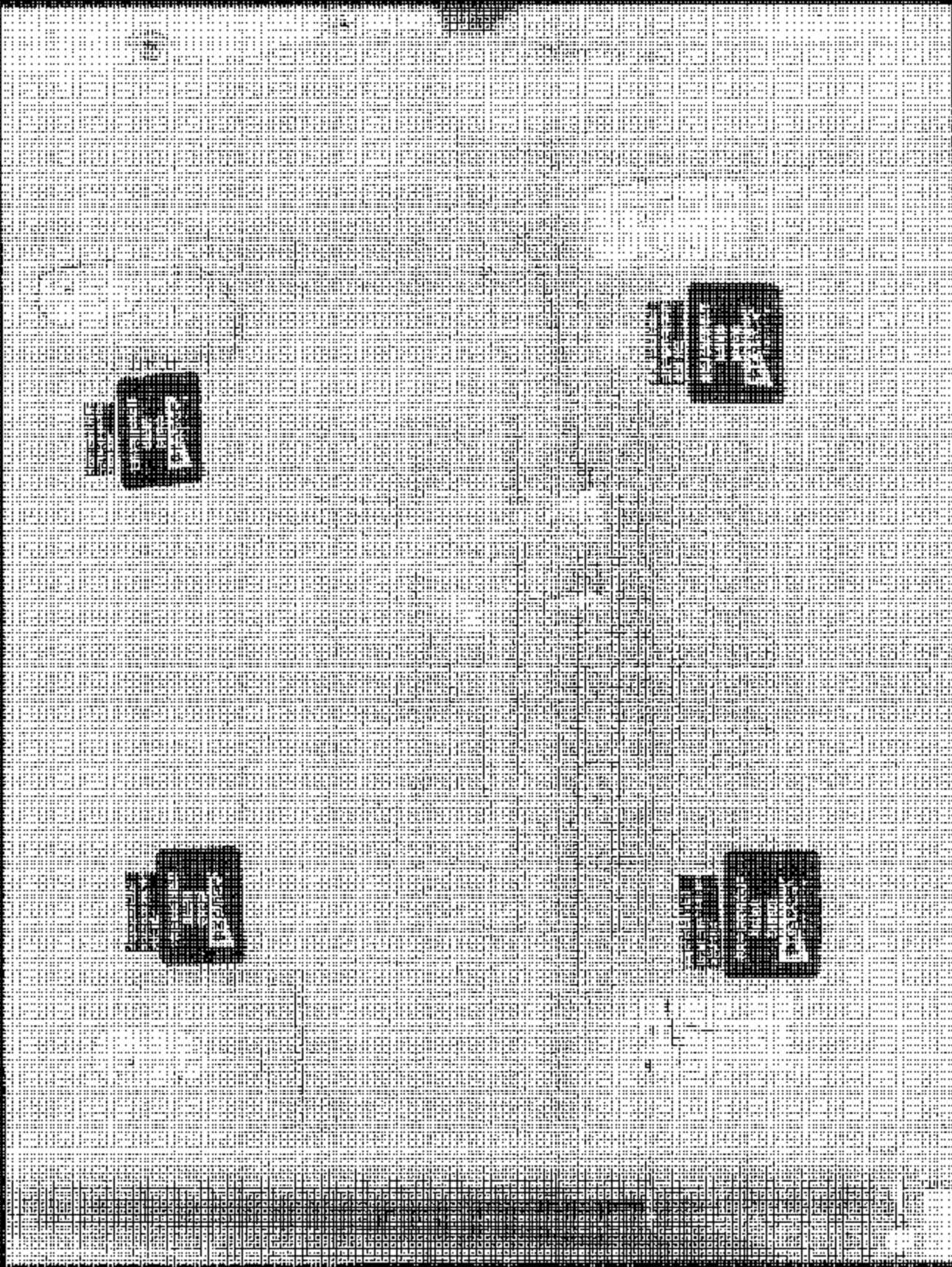


Figure A-64: Floor Plan, Right Front Seat Overall Position

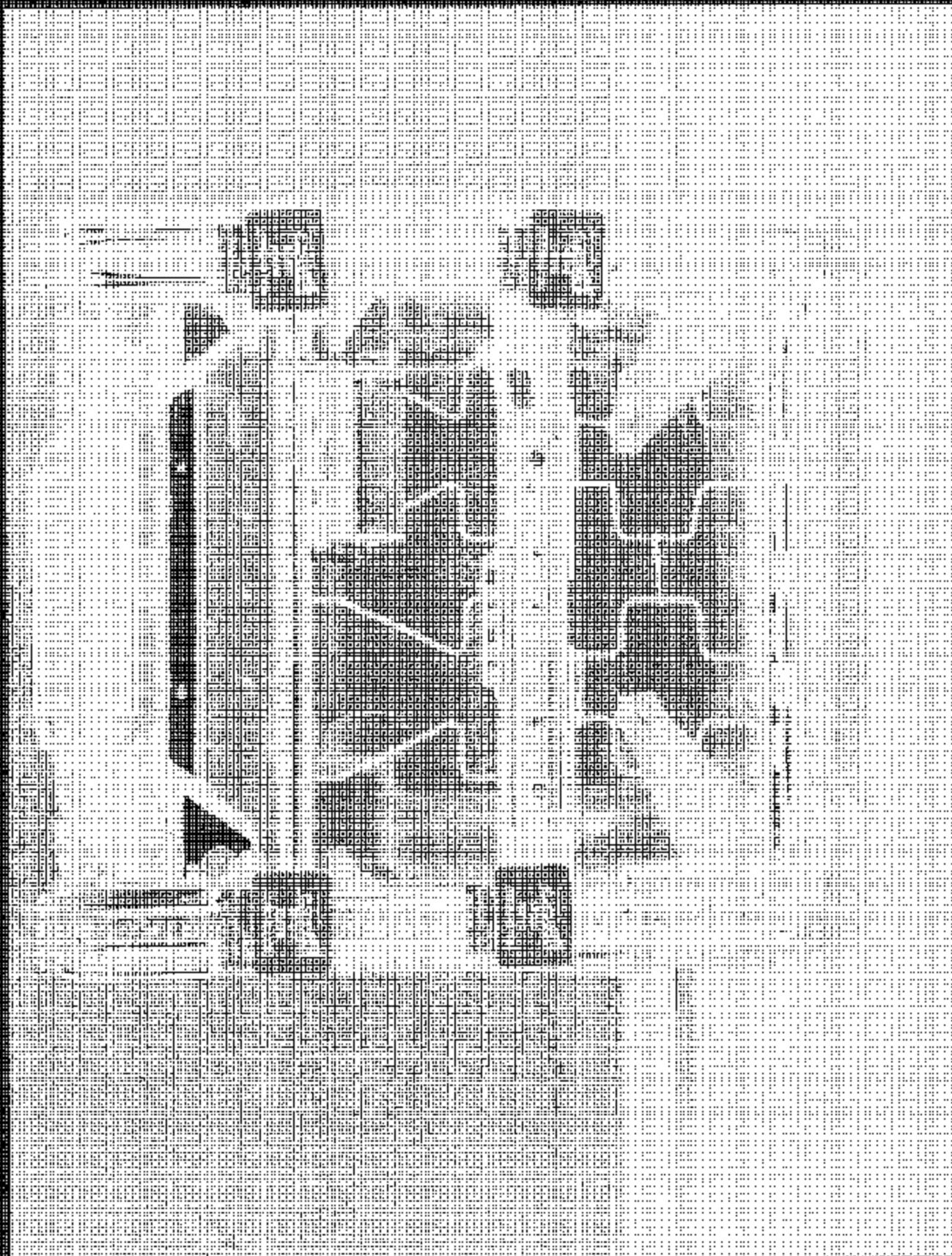


FIGURE A-66 SEAT CUSHION, RIGHT FOAM CONTAINER, PRO-104

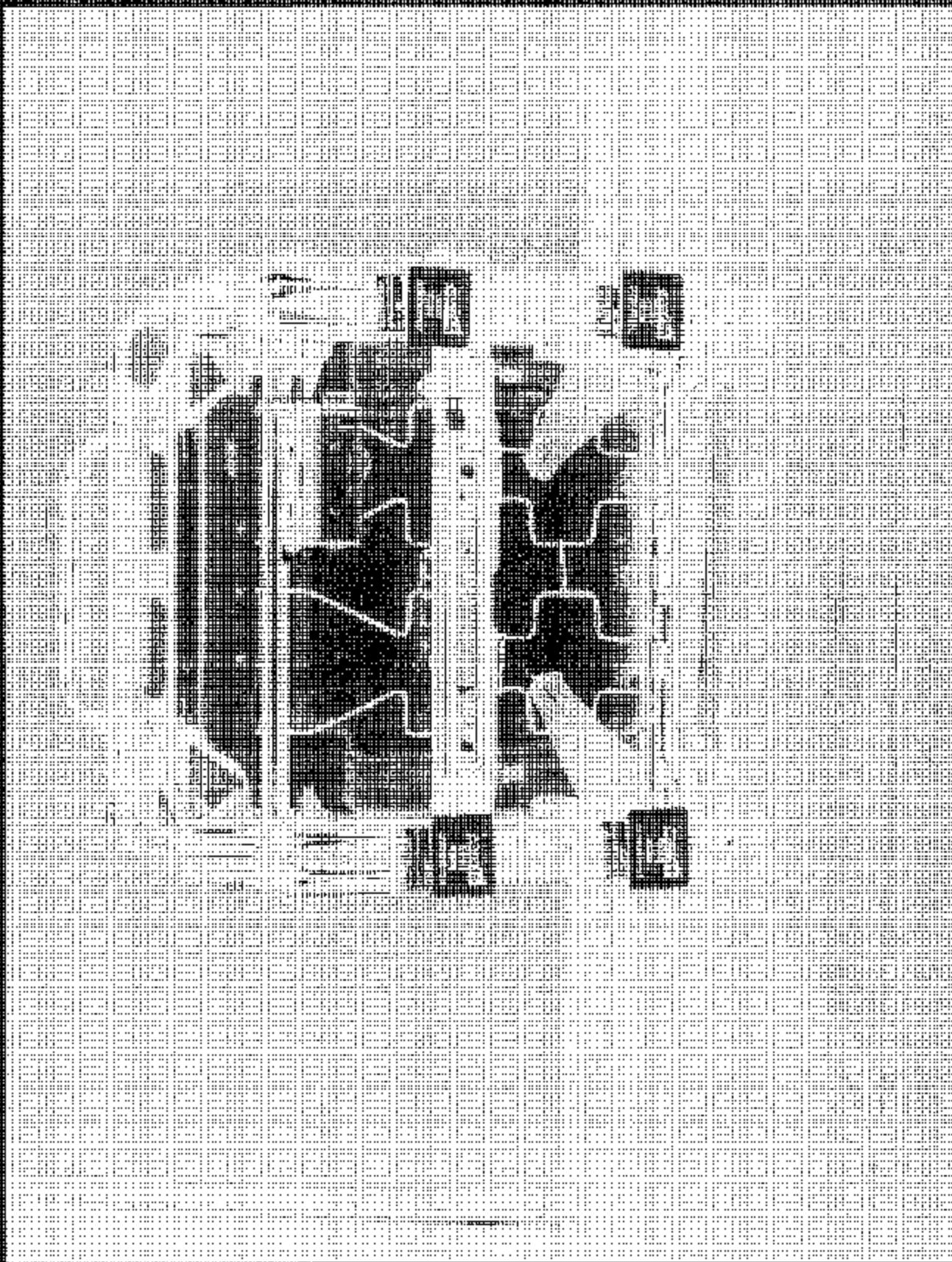


Figure A-04. Seal Anchors Right From Seal Outfall Post-Test

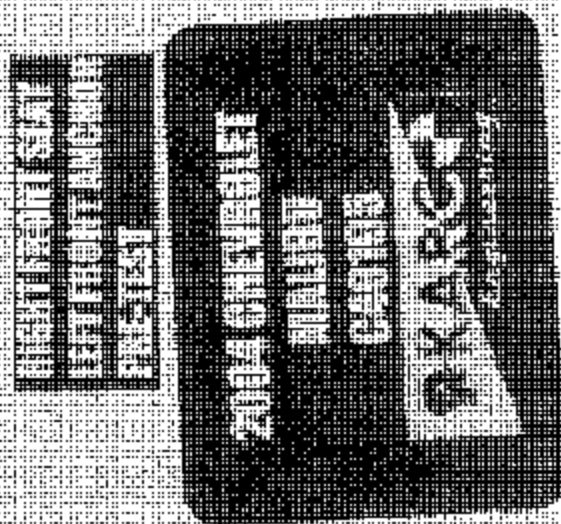


Figure A-67: Floor Mat Address, Right Front Seat, Pro-Tabs

RIGHT FRONT SEAT
LEFT FRONT ANCHOR
PULLEY TEST

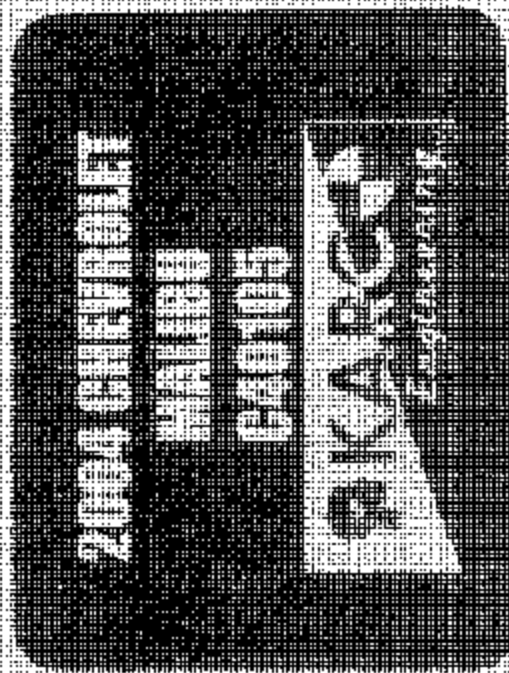


Figure A-6B. Floor Pan Anchor, Right Front Seat, Post-Test



Figure A-69 Seal Assembly, Right Front Seal, Pie-Flat

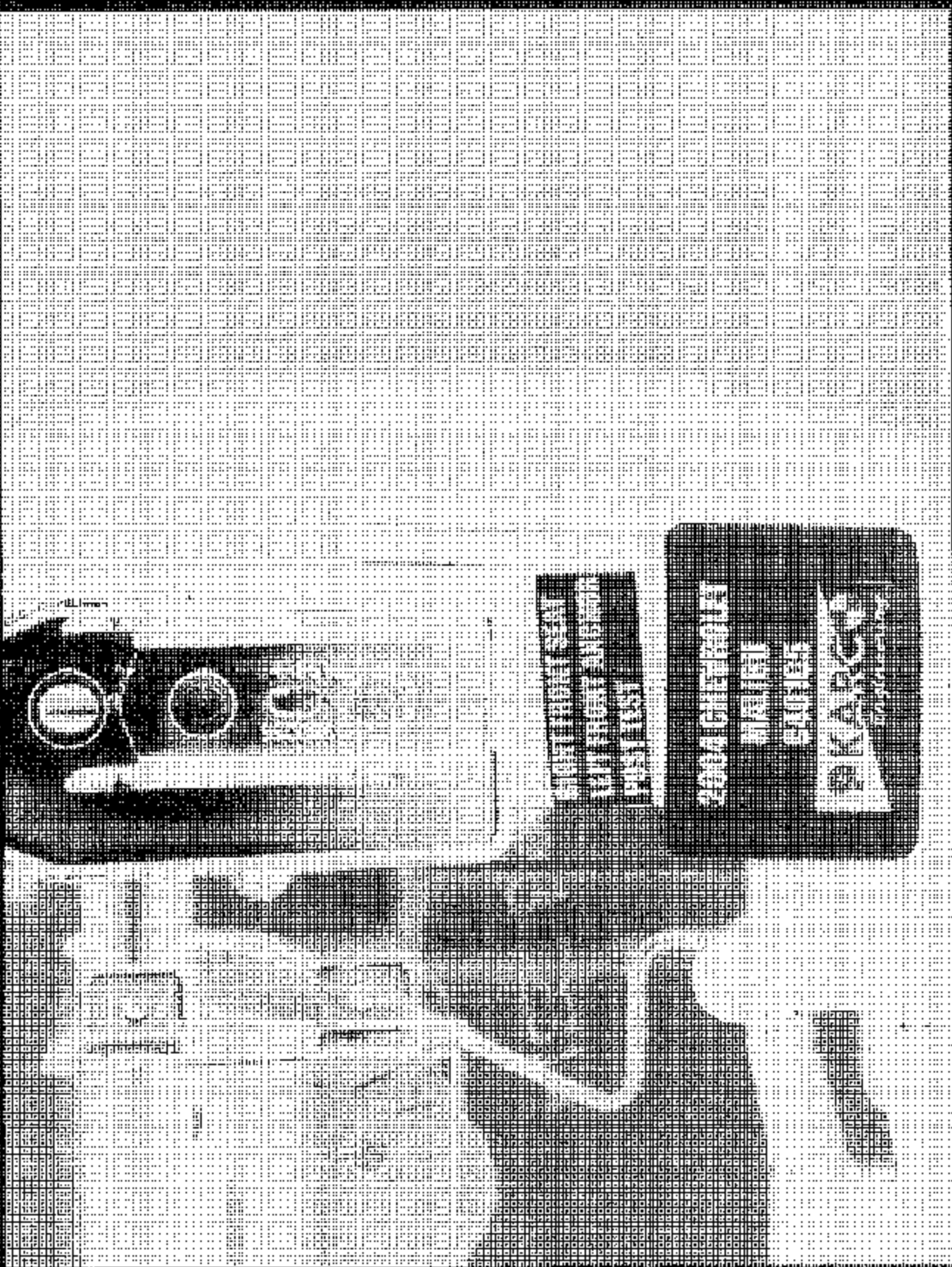


Figure A-70. Boat Anchor, Right Front Seat, Port Tie

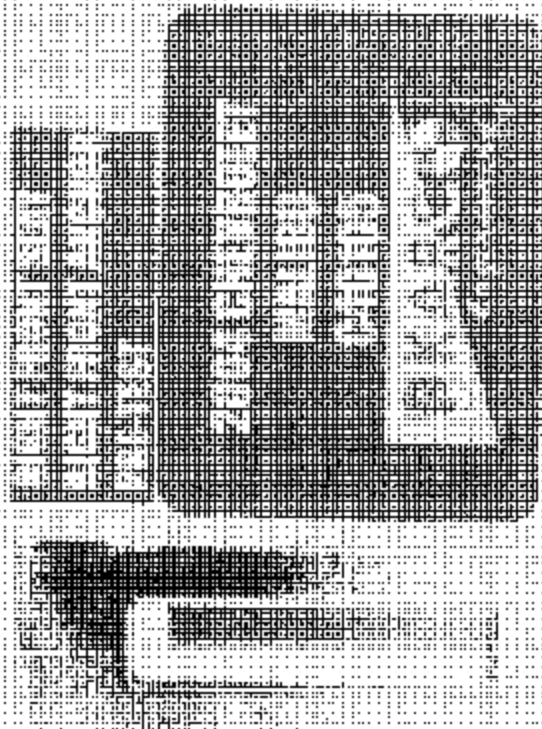


Figure A-71. Floor Plan Area, Right Front Section, P-100

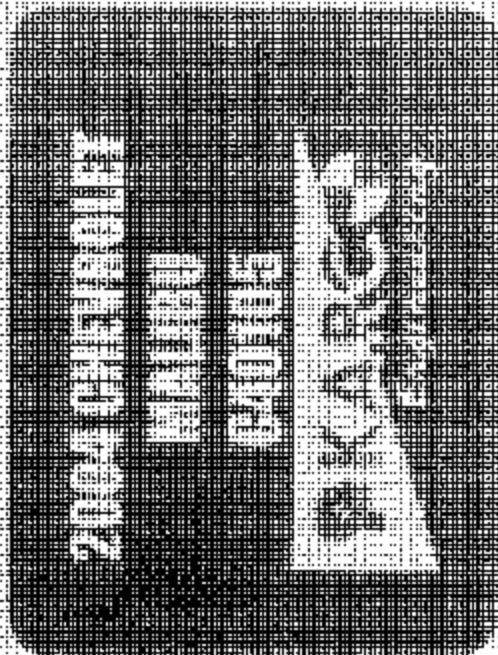


Figure A-72 Floor Pad Archer, Right Hand Seal, Post-Tess



Figure A-73: Seat Adjuster, Right Front Seat, Per Test

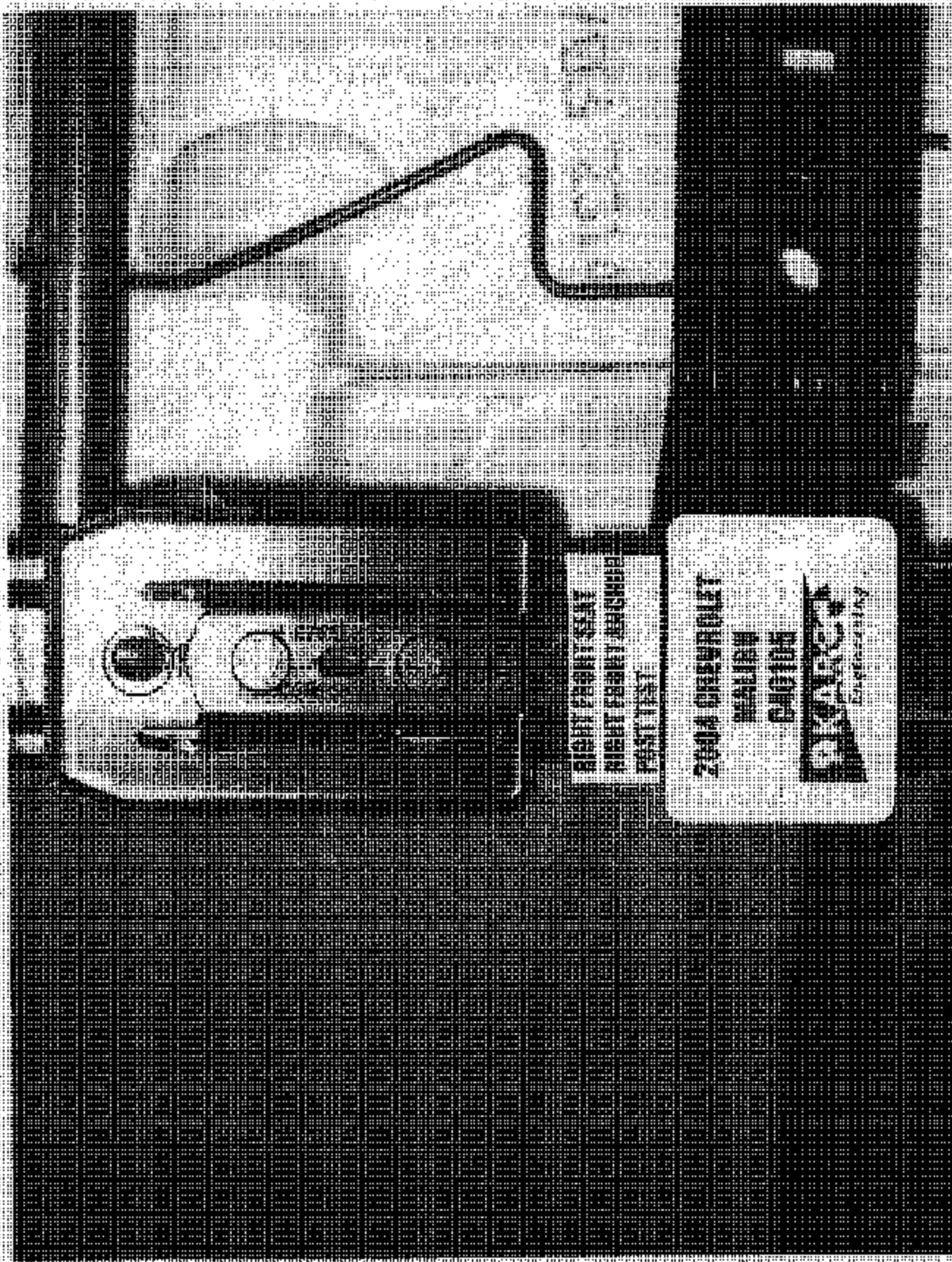


Figure A-74 Seal Anchor, Right Front Seal, Post-Test

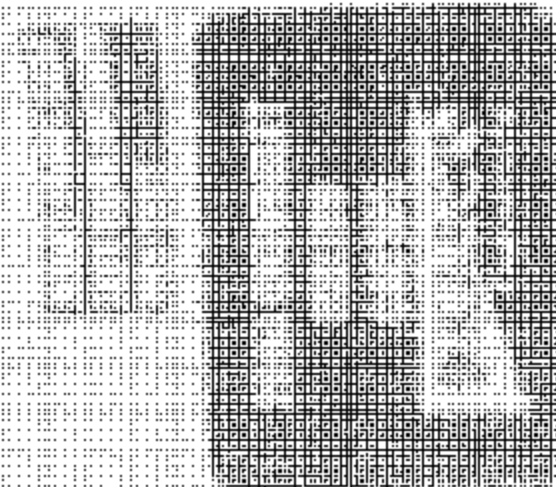


Figure A-73. Floor Pan Assembly, Right Front Ssai, Pre-Test

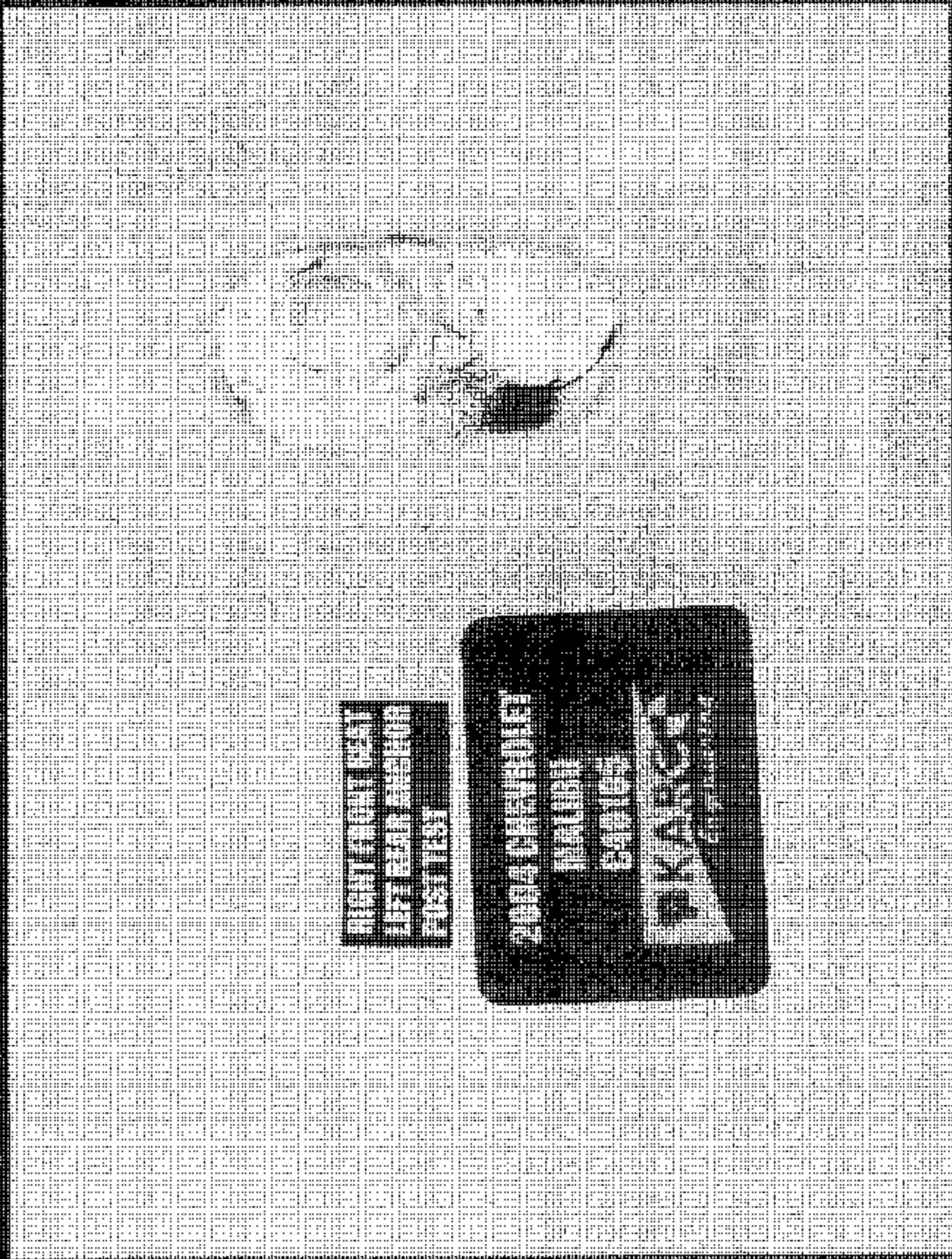


Figure A-73: Floor Part-Archival, Right Front Seat, Post-Test

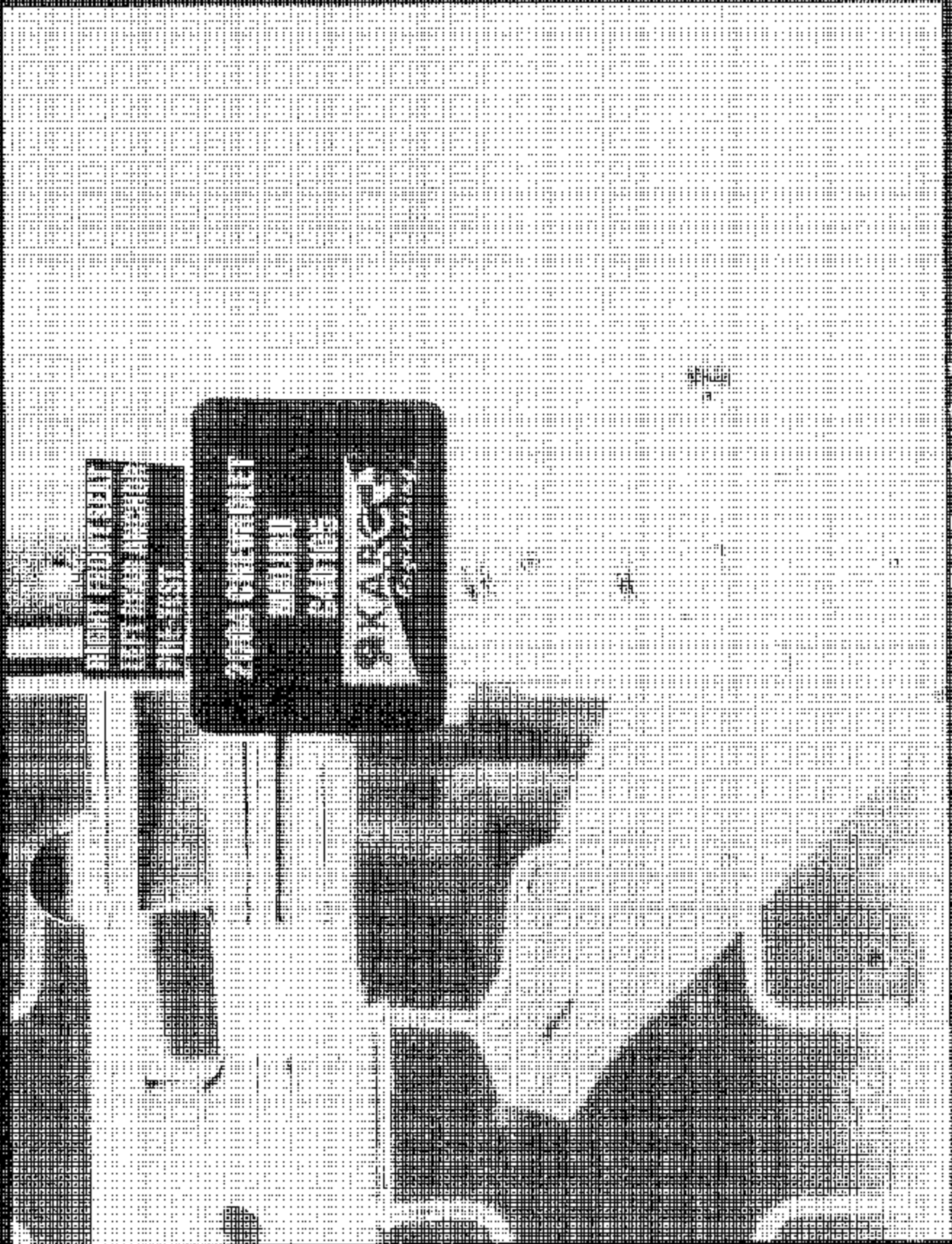


Figure A-77 Seal Anchor, Right Front Seat, Pre-Test



Figure A-7B. Seat Anchor, Right Front Seat, Post-Test

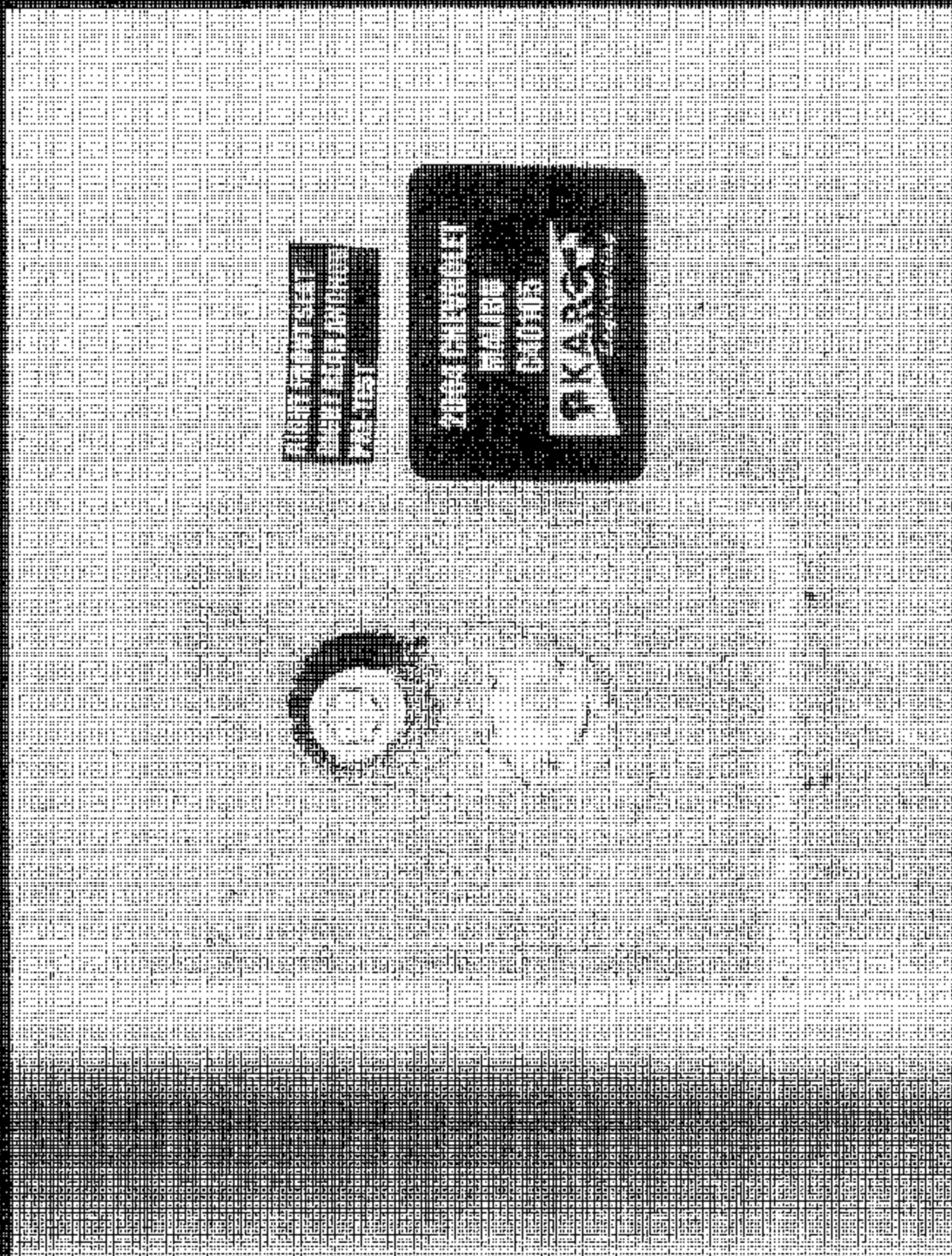


Figure A-79. Hood Pad: Anti-Q1, Right Front Seat, Pro-Job

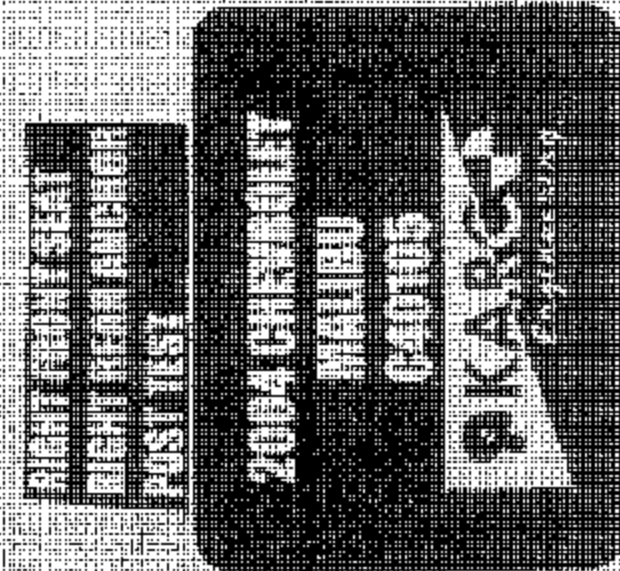


Figure A-10: Right Front Seat, Right Front Anchor, Right Front Seat, Post-Test

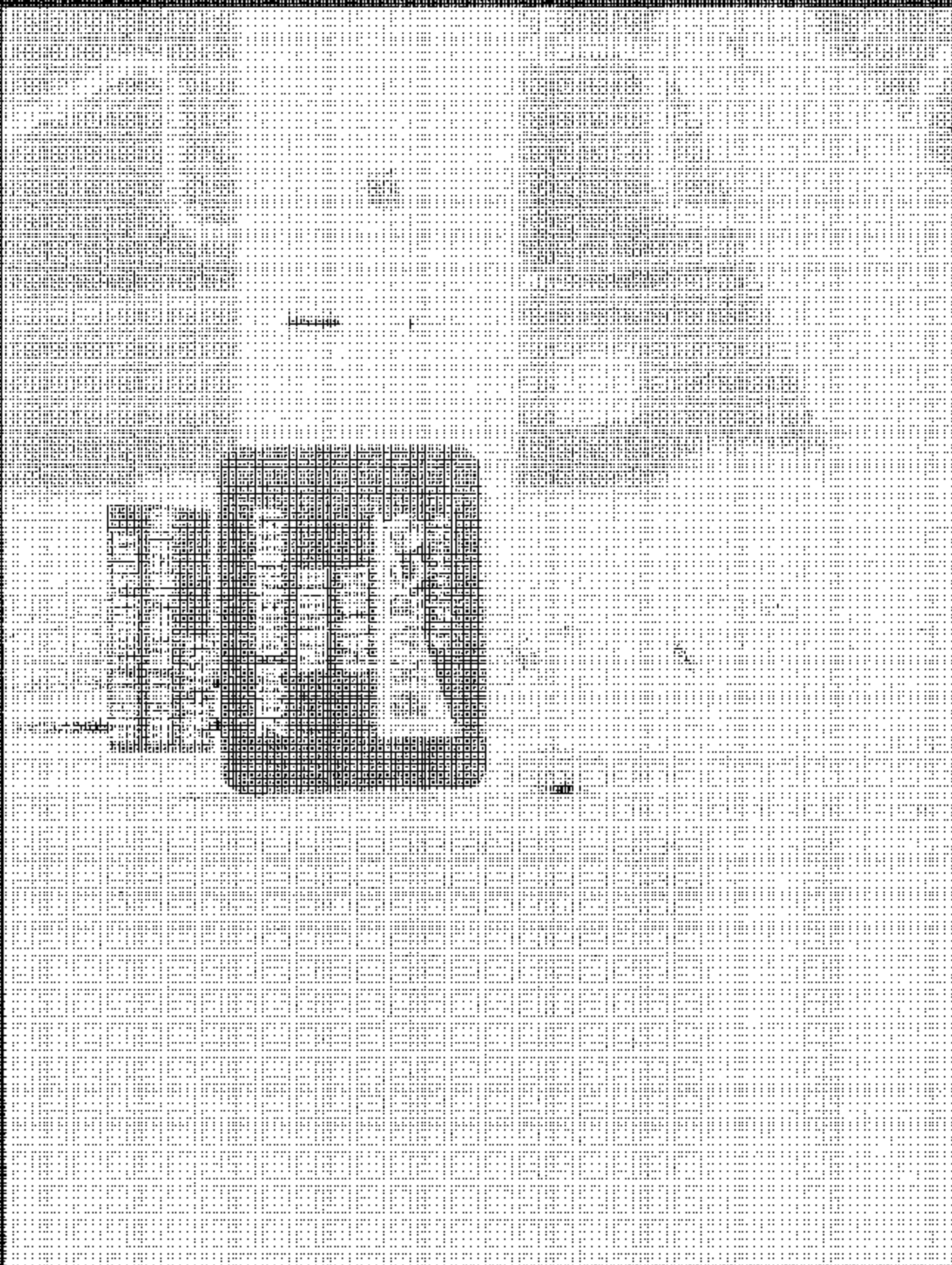
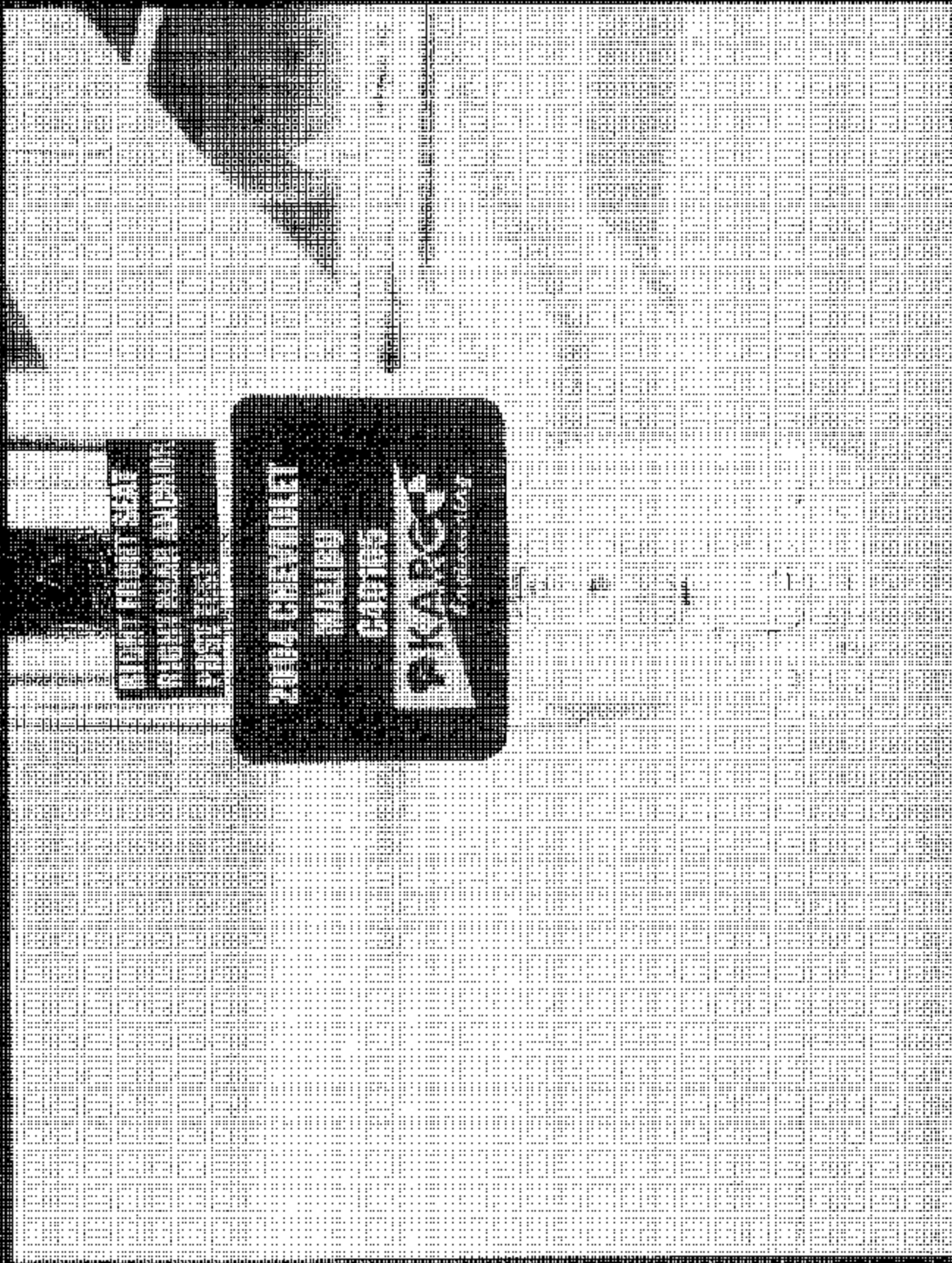


Figure A-61: Starboard, Right Forward, Port



15-1-2500 '1968 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000 25000 26000 27000 28000 29000 30000 31000 32000 33000 34000 35000 36000 37000 38000 39000 40000 41000 42000 43000 44000 45000 46000 47000 48000 49000 50000 51000 52000 53000 54000 55000 56000 57000 58000 59000 60000 61000 62000 63000 64000 65000 66000 67000 68000 69000 70000 71000 72000 73000 74000 75000 76000 77000 78000 79000 80000 81000 82000 83000 84000 85000 86000 87000 88000 89000 90000 91000 92000 93000 94000 95000 96000 97000 98000 99000 100000 101000 102000 103000 104000 105000 106000 107000 108000 109000 110000 111000 112000 113000 114000 115000 116000 117000 118000 119000 120000 121000 122000 123000 124000 125000 126000 127000 128000 129000 130000 131000 132000 133000 134000 135000 136000 137000 138000 139000 140000 141000 142000 143000 144000 145000 146000 147000 148000 149000 150000 151000 152000 153000 154000 155000 156000 157000 158000 159000 160000 161000 162000 163000 164000 165000 166000 167000 168000 169000 170000 171000 172000 173000 174000 175000 176000 177000 178000 179000 180000 181000 182000 183000 184000 185000 186000 187000 188000 189000 190000 191000 192000 193000 194000 195000 196000 197000 198000 199000 200000 201000 202000 203000 204000 205000 206000 207000 208000 209000 210000 211000 212000 213000 214000 215000 216000 217000 218000 219000 220000 221000 222000 223000 224000 225000 226000 227000 228000 229000 230000 231000 232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000 254000 255000 256000 257000 258000 259000 260000 261000 262000 263000 264000 265000 266000 267000 268000 269000 270000 271000 272000 273000 274000 275000 276000 277000 278000 279000 280000 281000 282000 283000 284000 285000 286000 287000 288000 289000 290000 291000 292000 293000 294000 295000 296000 297000 298000 299000 300000 301000 302000 303000 304000 305000 306000 307000 308000 309000 310000 311000 312000 313000 314000 315000 316000 317000 318000 319000 320000 321000 322000 323000 324000 325000 326000 327000 328000 329000 330000 331000 332000 333000 334000 335000 336000 337000 338000 339000 340000 341000 342000 343000 344000 345000 346000 347000 348000 349000 350000 351000 352000 353000 354000 355000 356000 357000 358000 359000 360000 361000 362000 363000 364000 365000 366000 367000 368000 369000 370000 371000 372000 373000 374000 375000 376000 377000 378000 379000 380000 381000 382000 383000 384000 385000 386000 387000 388000 389000 390000 391000 392000 393000 394000 395000 396000 397000 398000 399000 400000 401000 402000 403000 404000 405000 406000 407000 408000 409000 410000 411000 412000 413000 414000 415000 416000 417000 418000 419000 420000 421000 422000 423000 424000 425000 426000 427000 428000 429000 430000 431000 432000 433000 434000 435000 436000 437000 438000 439000 440000 441000 442000 443000 444000 445000 446000 447000 448000 449000 450000 451000 452000 453000 454000 455000 456000 457000 458000 459000 460000 461000 462000 463000 464000 465000 466000 467000 468000 469000 470000 471000 472000 473000 474000 475000 476000 477000 478000 479000 480000 481000 482000 483000 484000 485000 486000 487000 488000 489000 490000 491000 492000 493000 494000 495000 496000 497000 498000 499000 500000 501000 502000 503000 504000 505000 506000 507000 508000 509000 510000 511000 512000 513000 514000 515000 516000 517000 518000 519000 520000 521000 522000 523000 524000 525000 526000 527000 528000 529000 530000 531000 532000 533000 534000 535000 536000 537000 538000 539000 540000 541000 542000 543000 544000 545000 546000 547000 548000 549000 550000 551000 552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000 564000 565000 566000 567000 568000 569000 570000 571000 572000 573000 574000 575000 576000 577000 578000 579000 580000 581000 582000 583000 584000 585000 586000 587000 588000 589000 590000 591000 592000 593000 594000 595000 596000 597000 598000 599000 6000

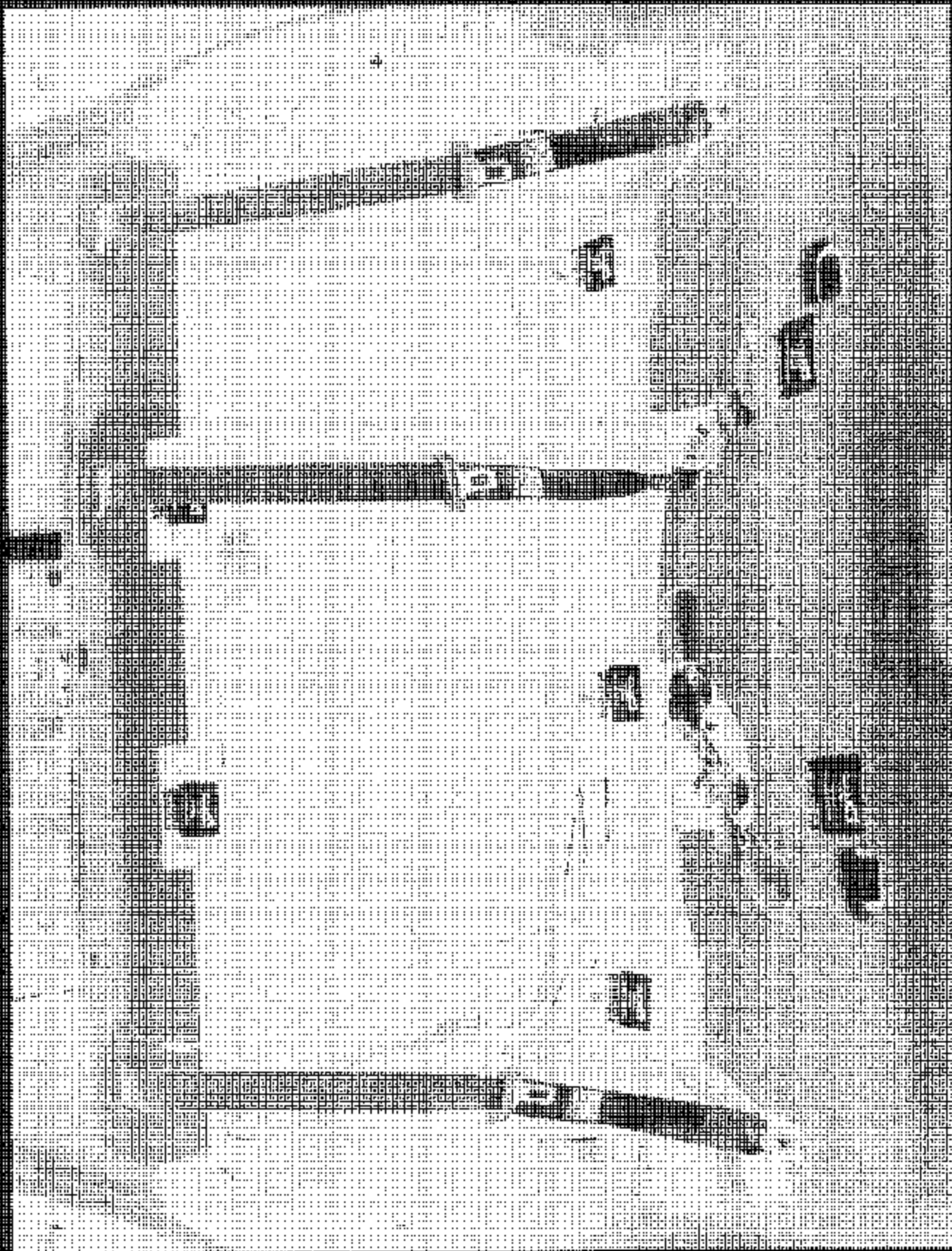


Figure A-83 Floor Pad Anchors, Right Side, Seat Cushion Overall Pre-Test

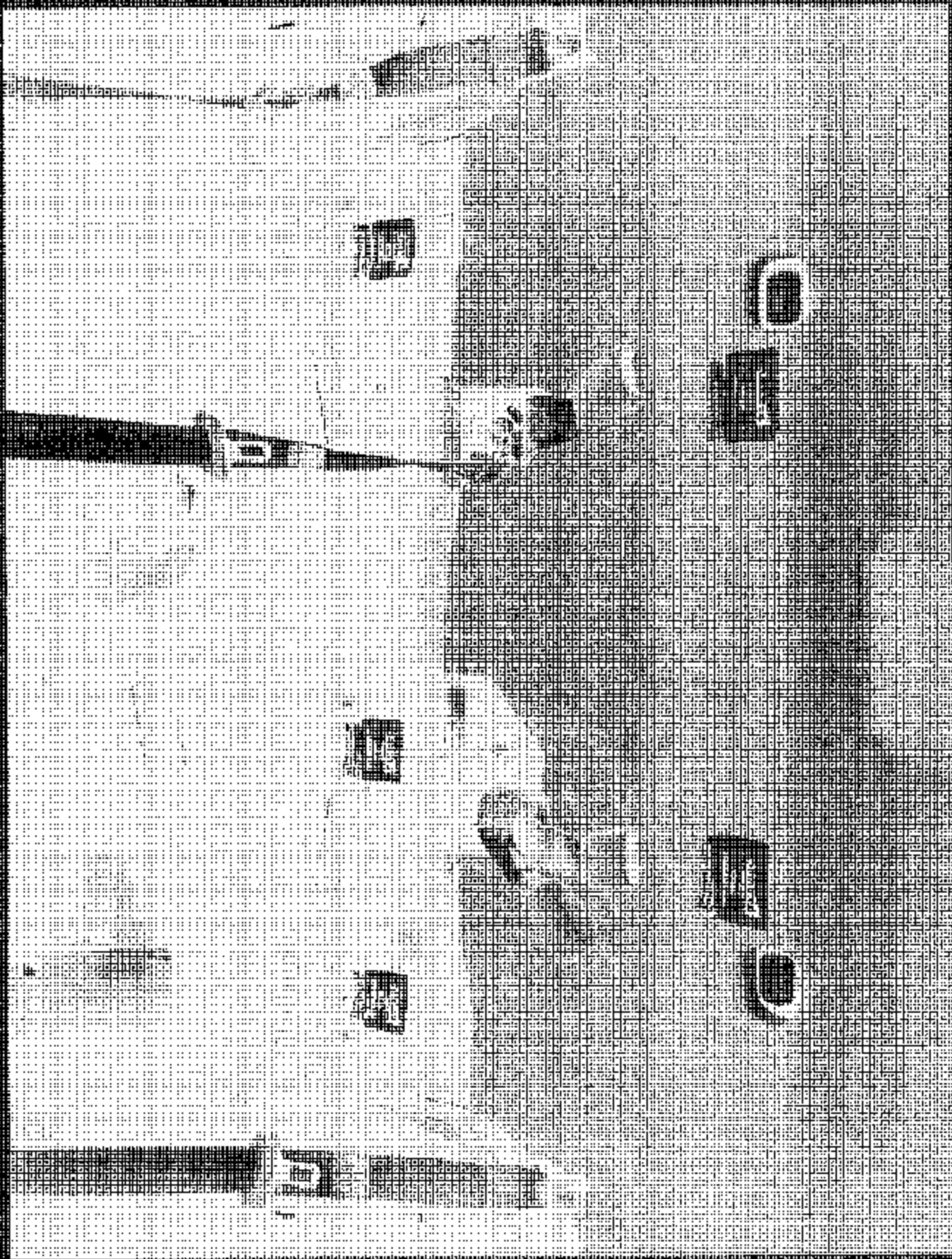


Figure A-6A: Rear Pan Anchors, Rear Seat, Seat Cushion Overall Post Test

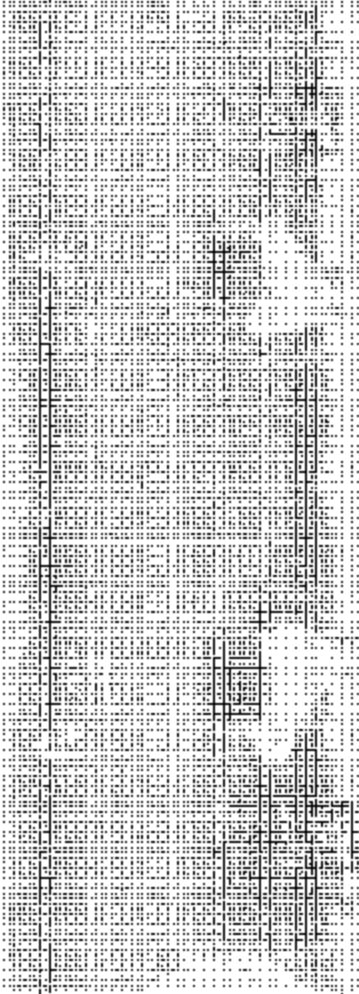


Figure A-65 Seal Assembly, Rear Seal, Seal Cushion Overl. Pre-Test

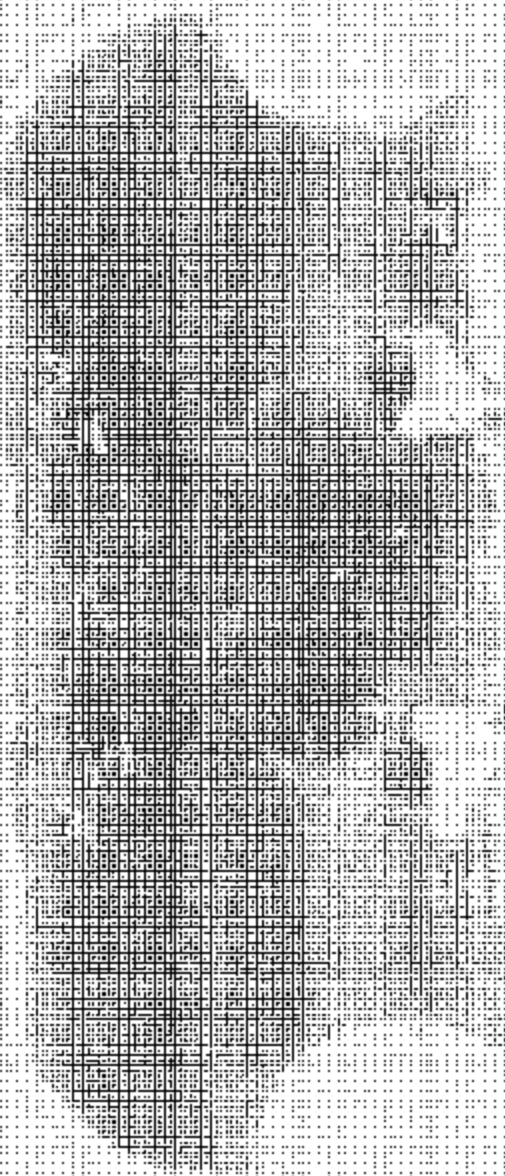


Figure A-10: Seal Andrews, Rear Seal Seal Cautions Overall, Post 1991



Figure A-87: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

2004 CHEVROLET
NATIONAL
SALES
TEST

2004 CHEVROLET
NATIONAL
SALES
TEST
PKARCA
COLUMBIA

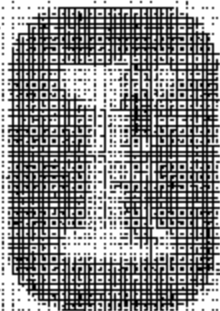
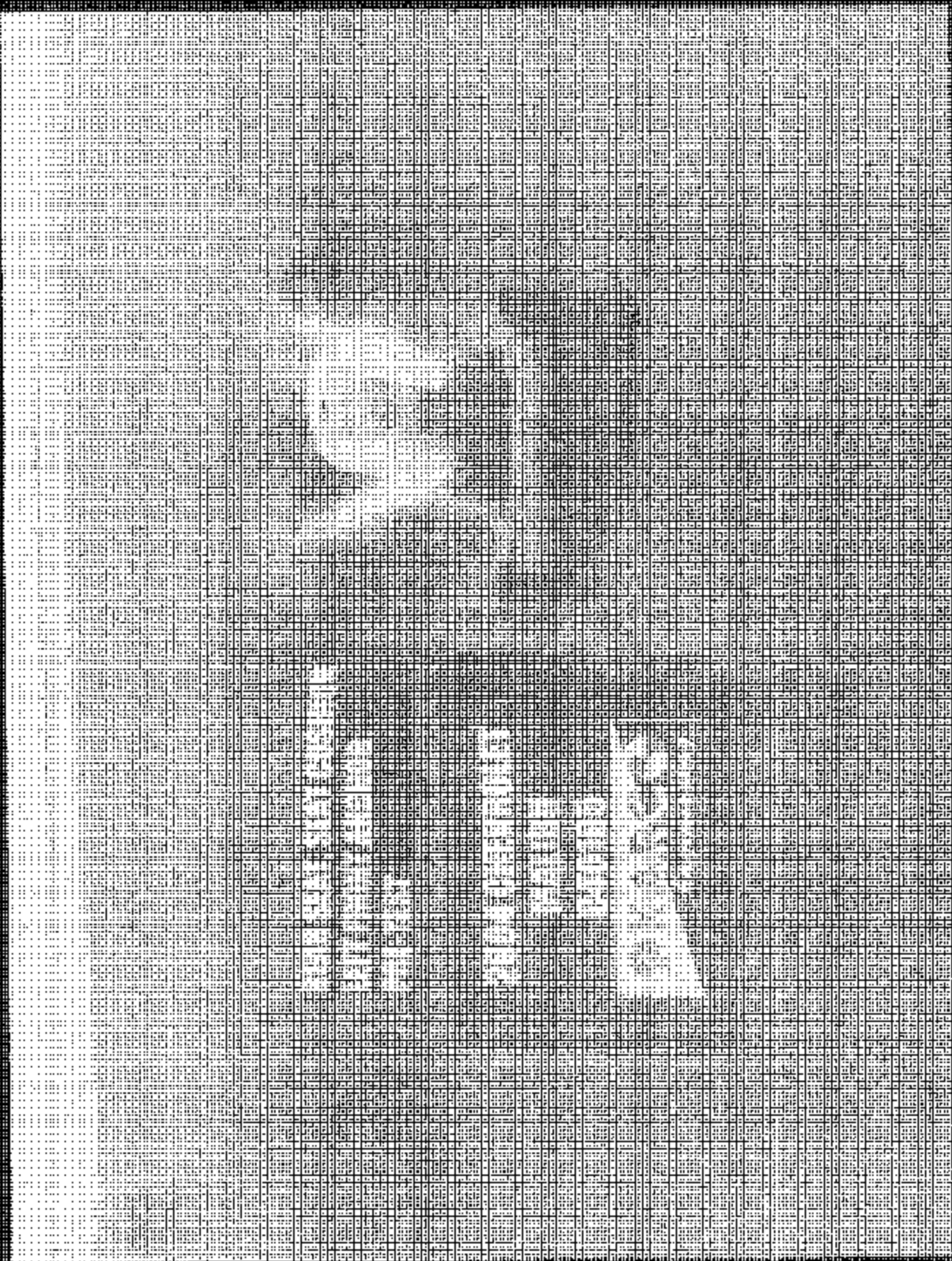


Figure A-18. Five Pan-Injection Real Seat Sae Cushion Post Seal



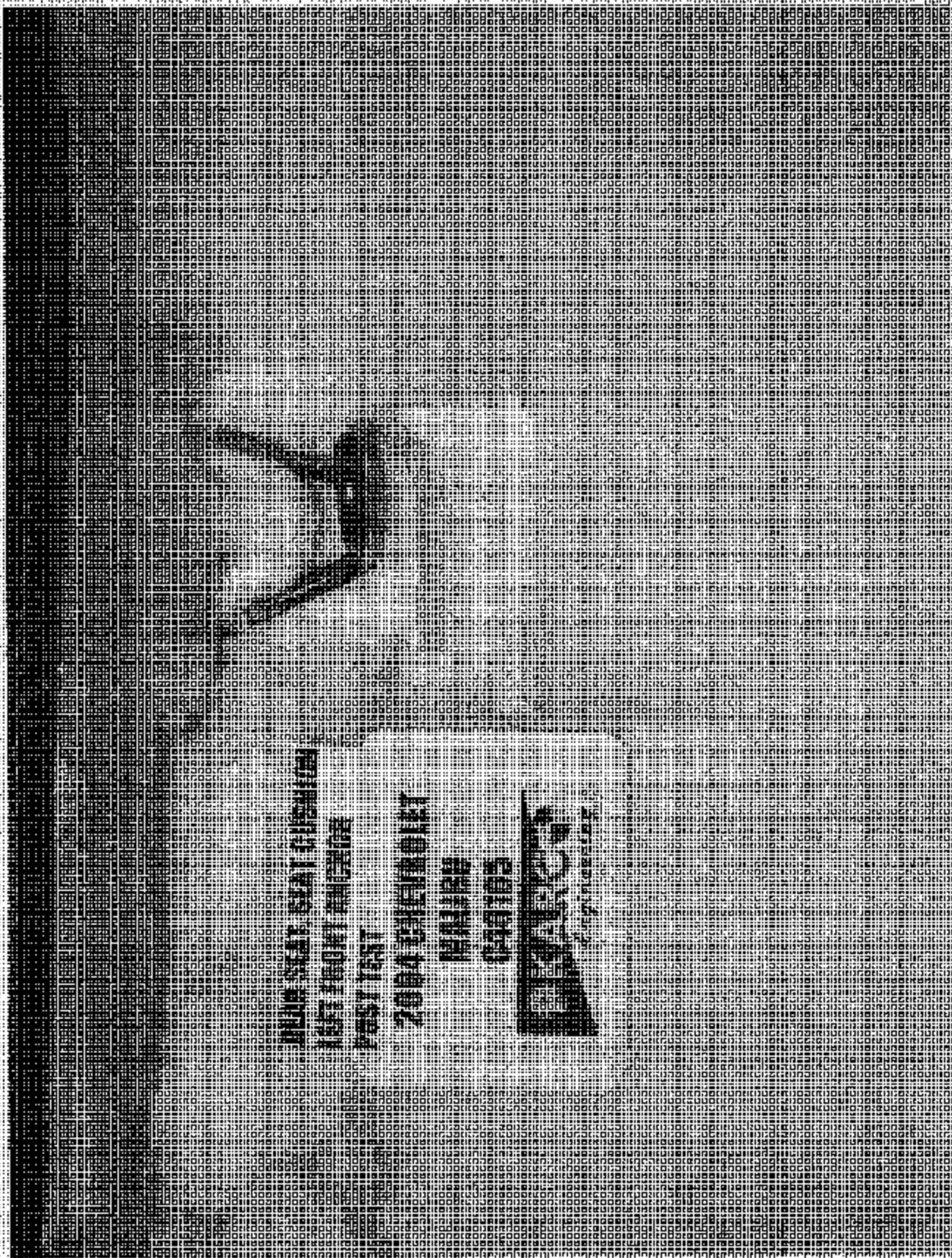


Figure A-90: Seat Anchor, Rear Seat, Seat Cushion, Fast Tent

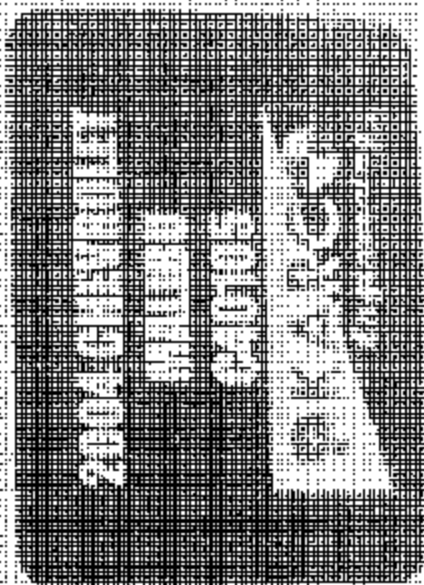


Figure A-31: Floor Pan Anchor, Rear Seat, Seat Cushion, Pin-Tail

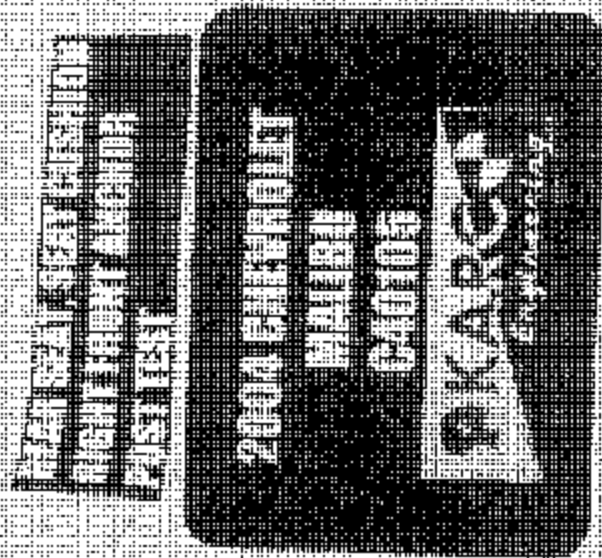


Figure A-57 Fiber Pen Arrow, Rear Seat, Seat Cushion Post-Fast

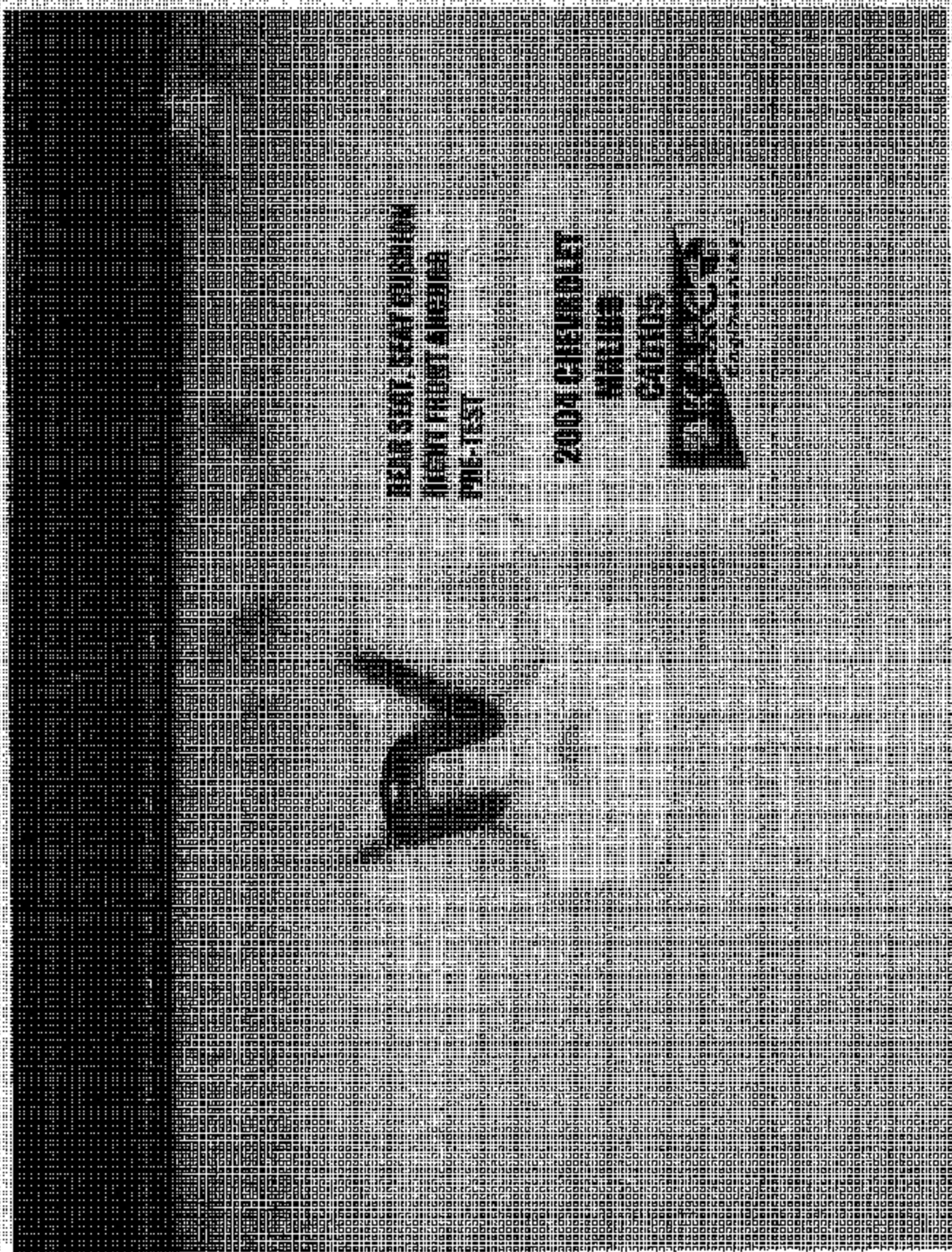


Figure A-93: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

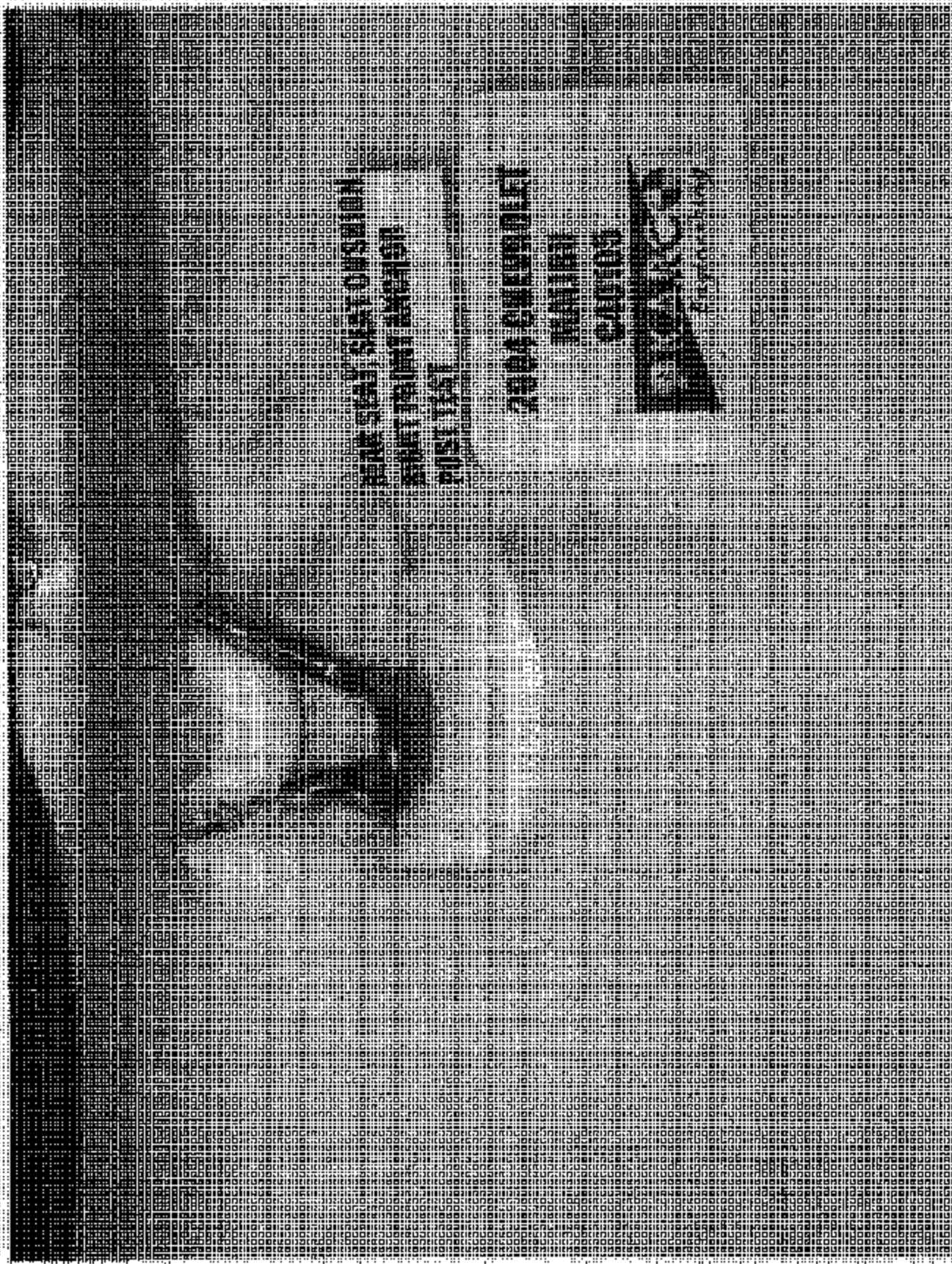


Figure A-54. Seal Anchor, Rear Seat, Seat Cushion, Post Test

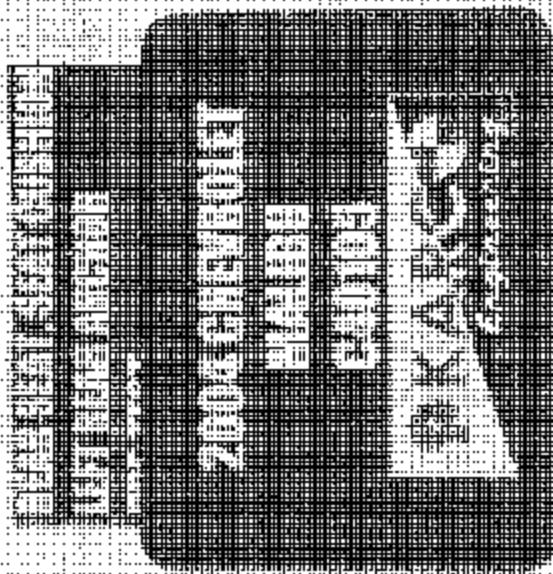


Figure A-65. Floor Pin Anchor, Rear Seal Cap/Kn, Pre-Tent

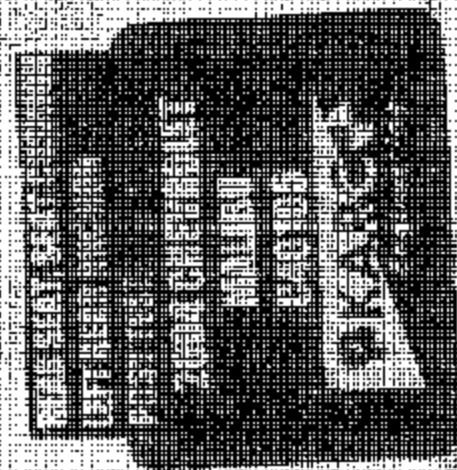


Figure A-98 Floor Pan Anchor, Rear Seat, Seat Cushion, Fast-Tax

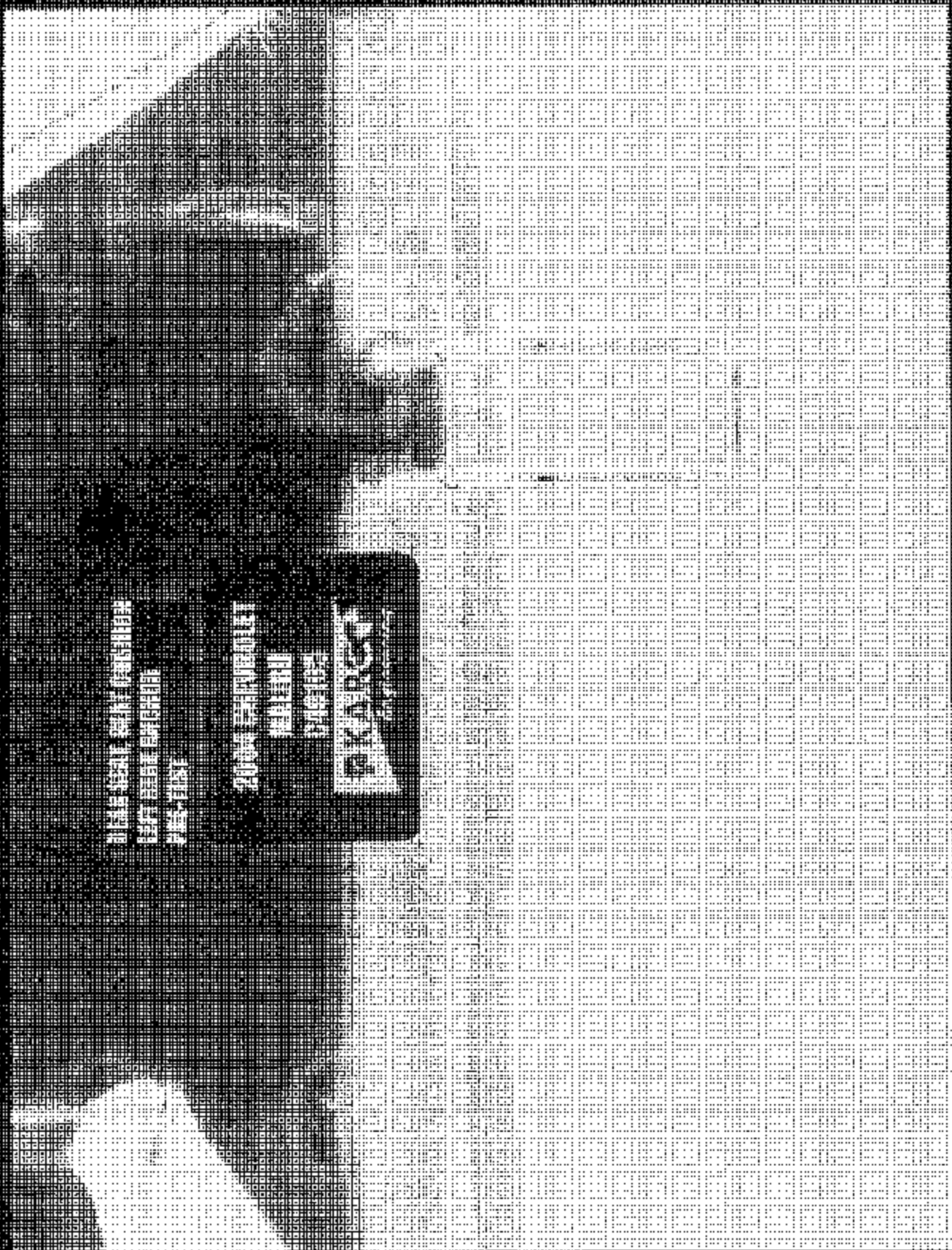


Figure A-37 Seal Anchor, Roof Seal, Seal Gasket, Pipe-Fast



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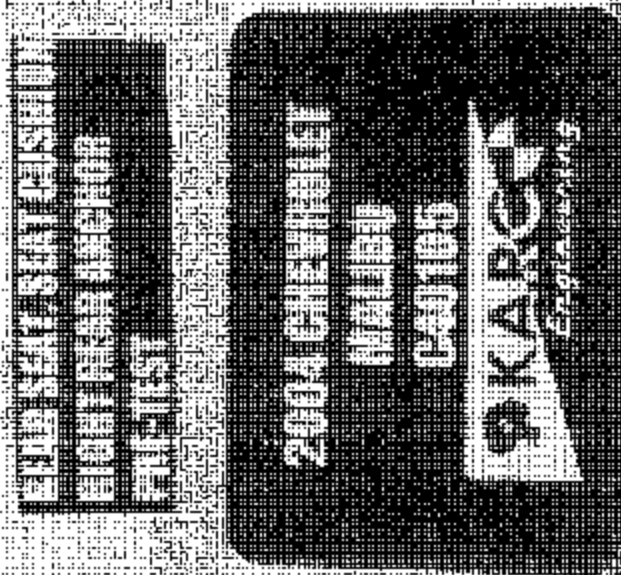


Figure A-89: Floor Fan Anchor, Rear View, Seat Cushion, Pre-Test

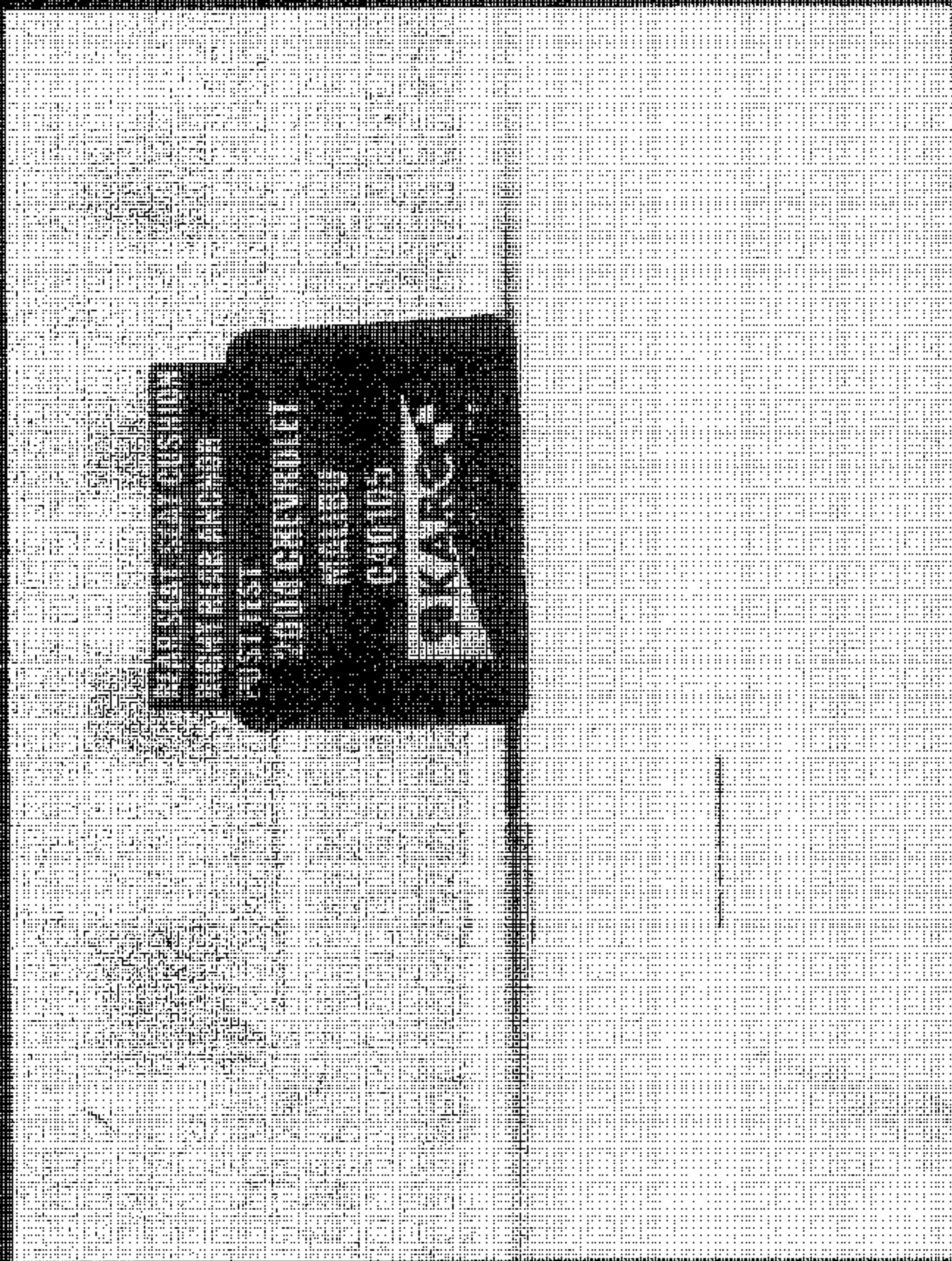


Figure A-100. Radio Set: Analog, Real Seal, Solid Circuit, Post-Test



Figure A-101 (Seat Anchor), Rear Seat, Seat Cushion, Pro-Tech



Figure A-102: Seat Cushion, Rear Seat, Seat Cushion, Post-1981

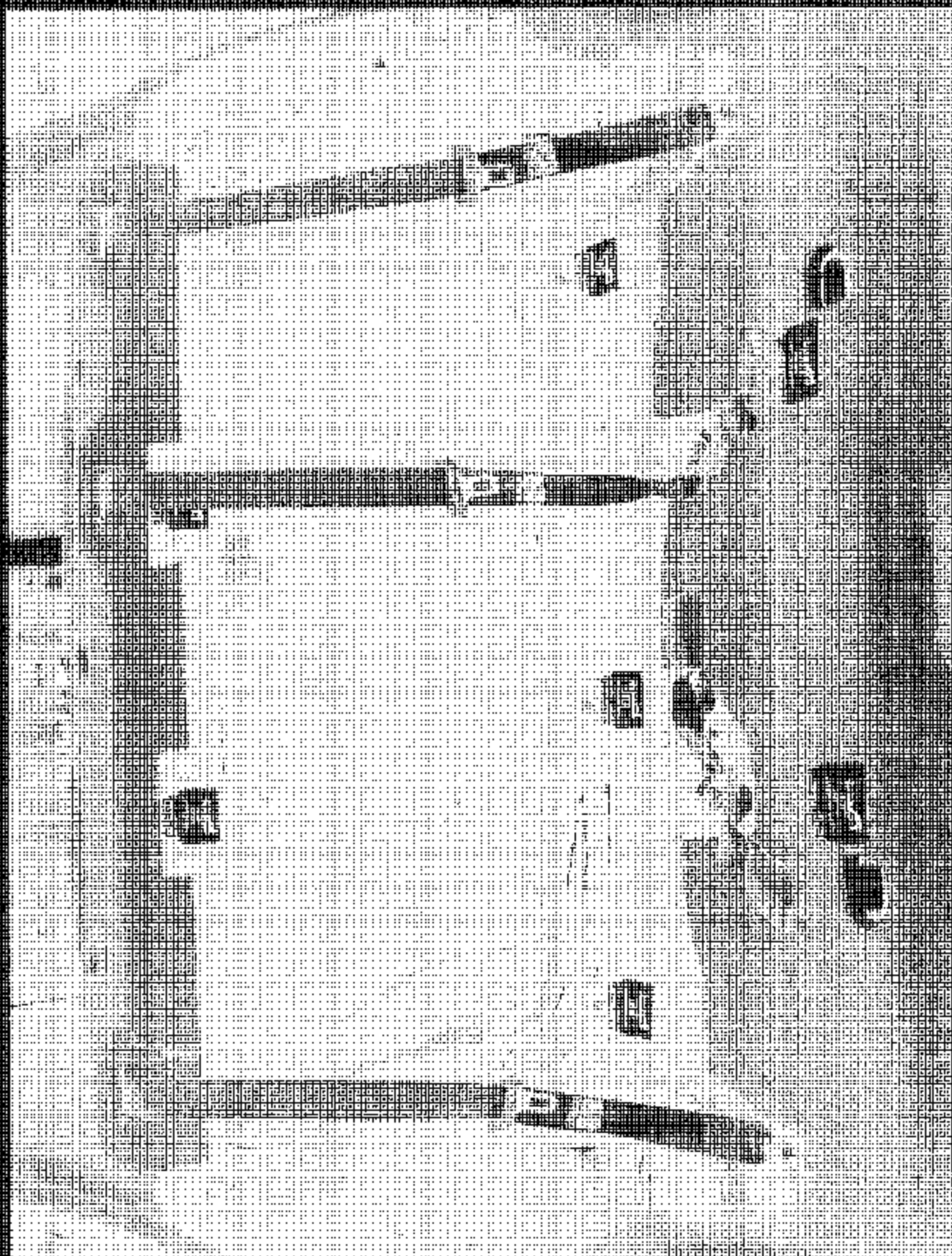


Figure A-103: Floor Plan Anchors, Rear Seal, Seal Back Overall Pre-Test

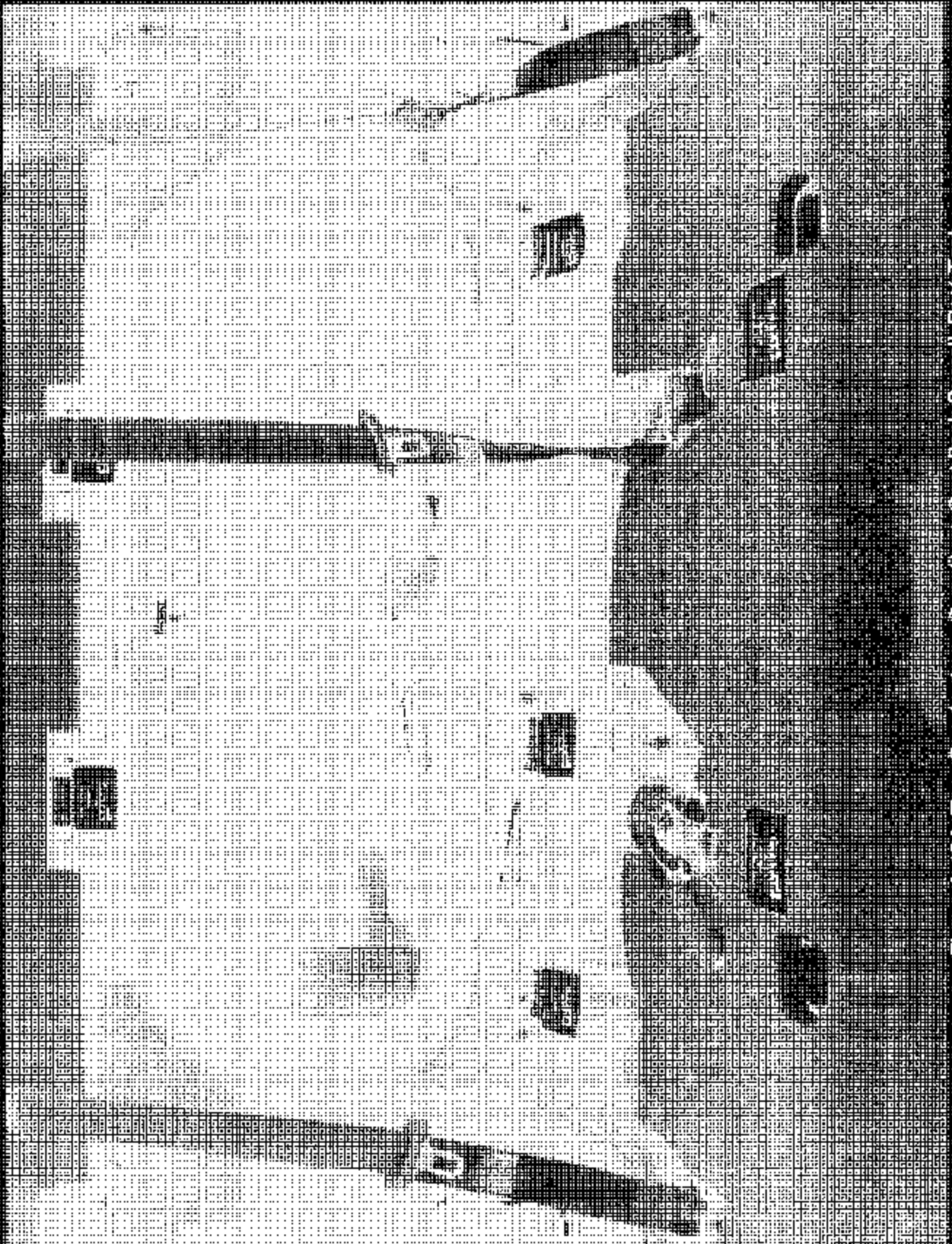


Figure A-106: Thor Pat Anctols, Rear Seat, Seat Back Overall, Post Test

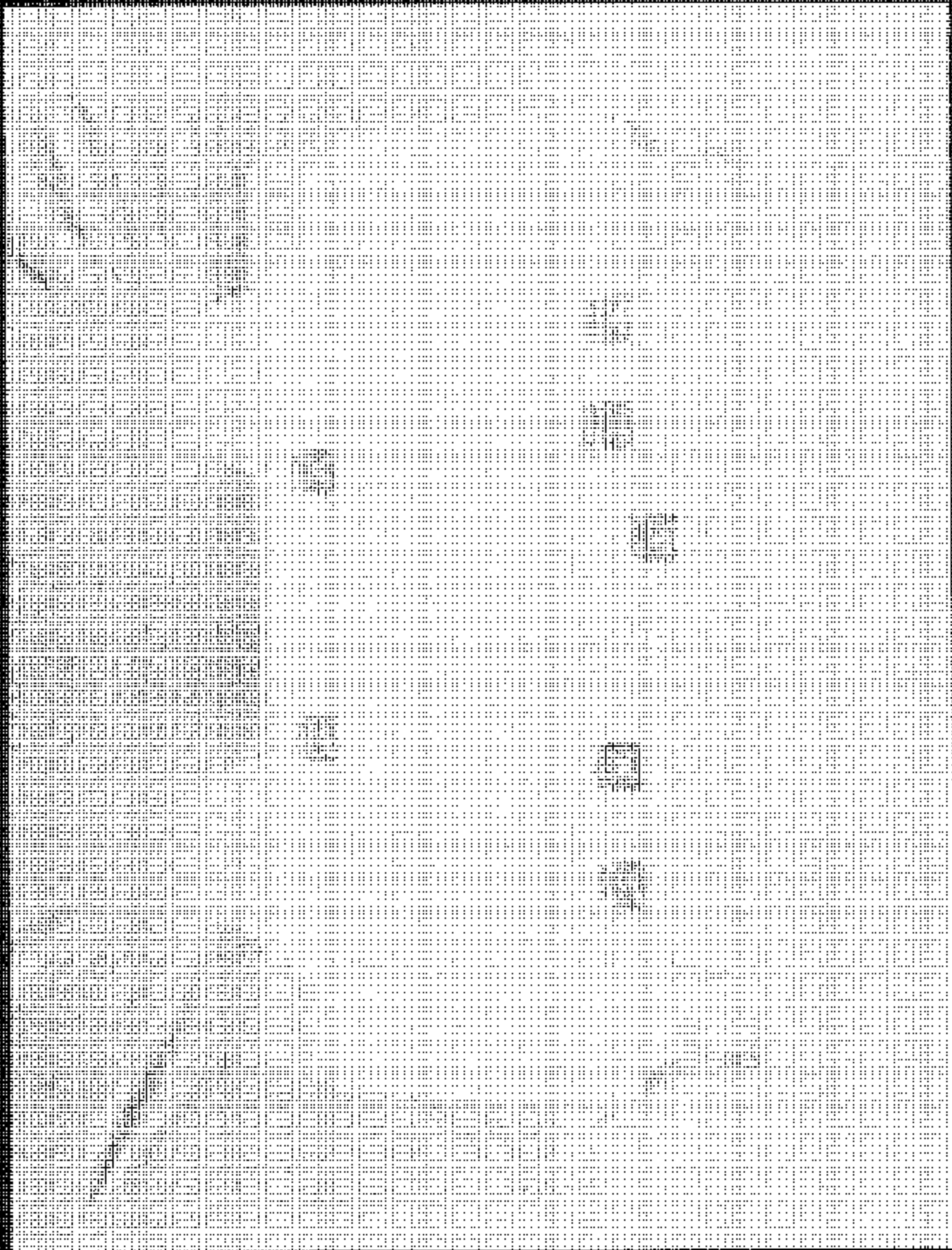


Figure A-105. Seat Back Overall Pre-Test

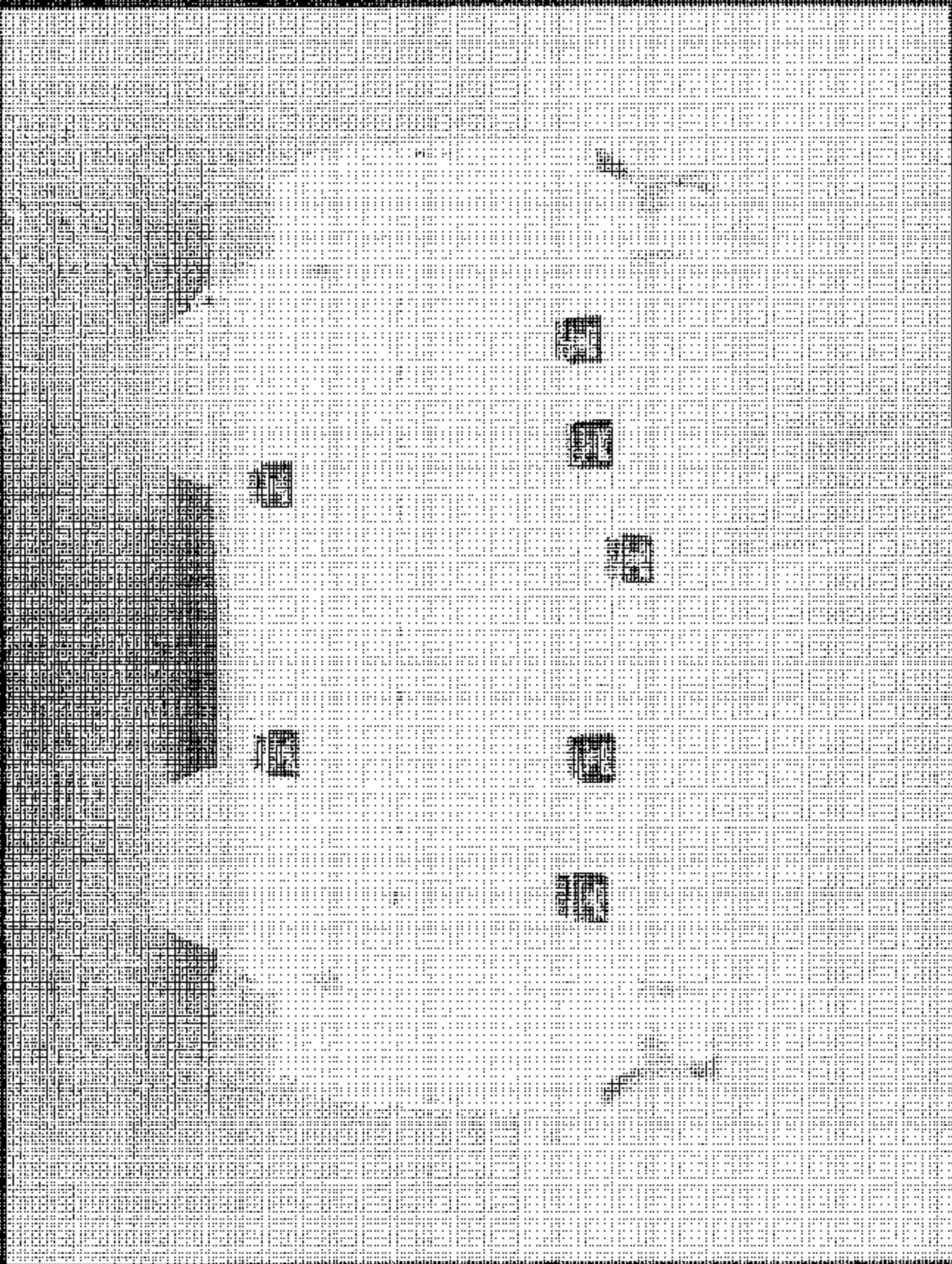


Figure A-106 Seat Anchors, Rear Seat, Seat Back Overl, Post-Inst

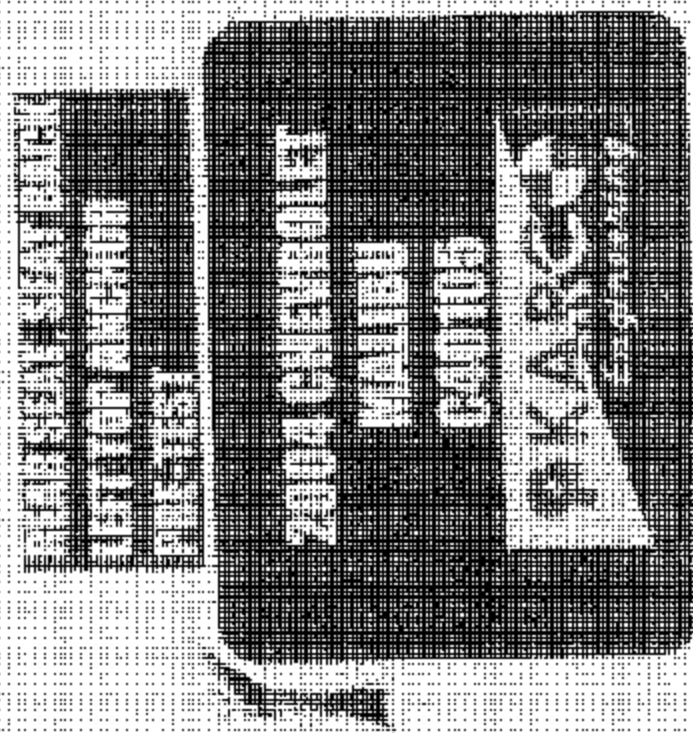


Figure A-10: Heavy Flat Anchor, Rear Seat, Seal Check, Pad-Tuck

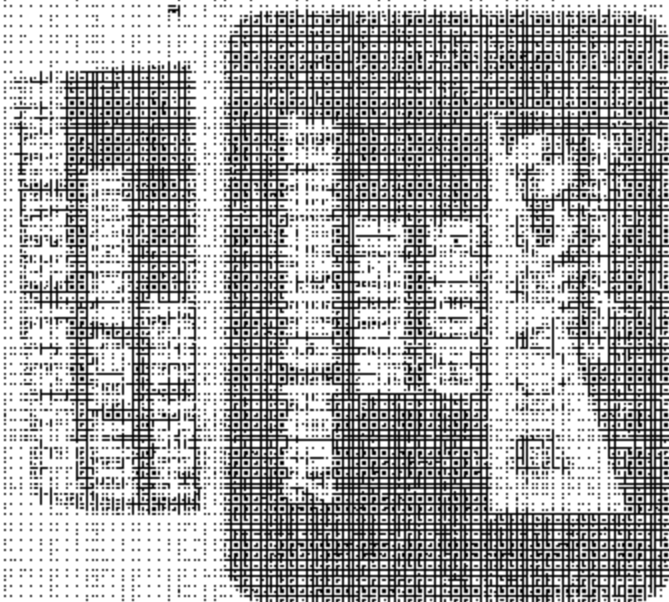


Figure A-108: Floor Pan Assembly, Rear Seat, Seat Back, Floor-Tail

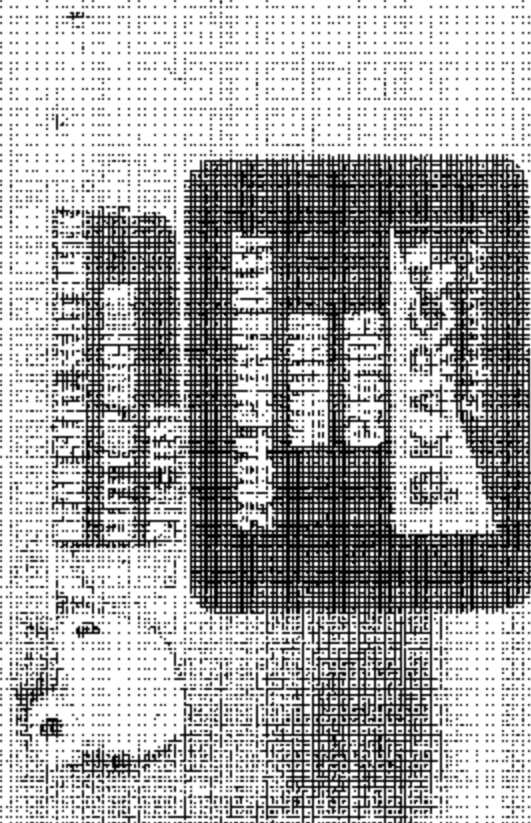


Figure A-109: Seat Anchor, Rear Seat, Seat Back, Pre-1981

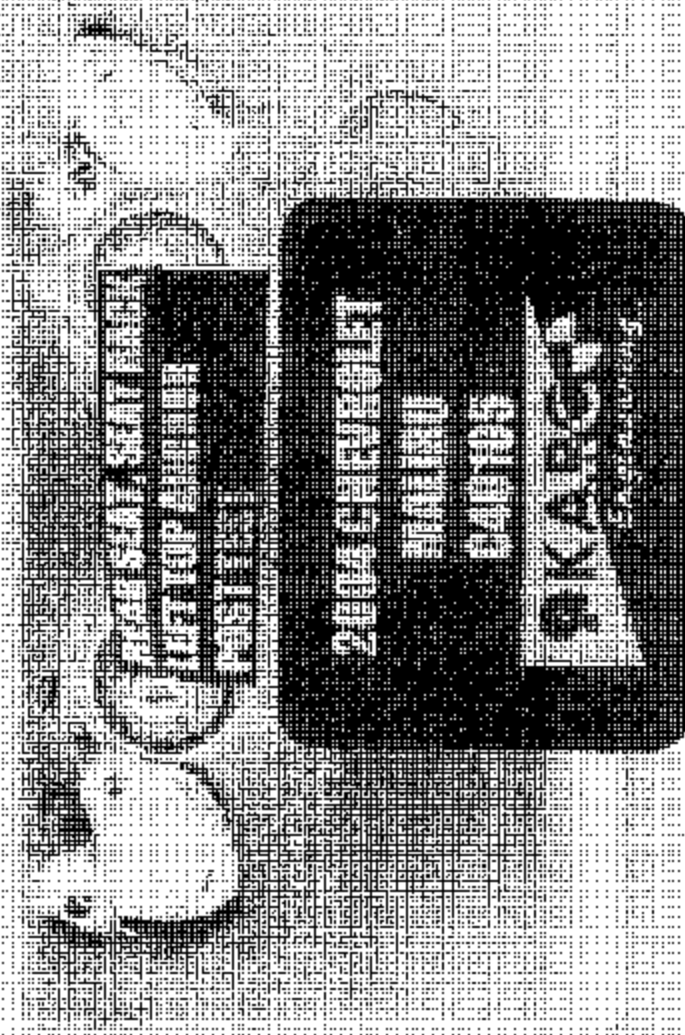


Figure A-10: Seal Anchor, Rear Seal, Seal Back, Post-Hist

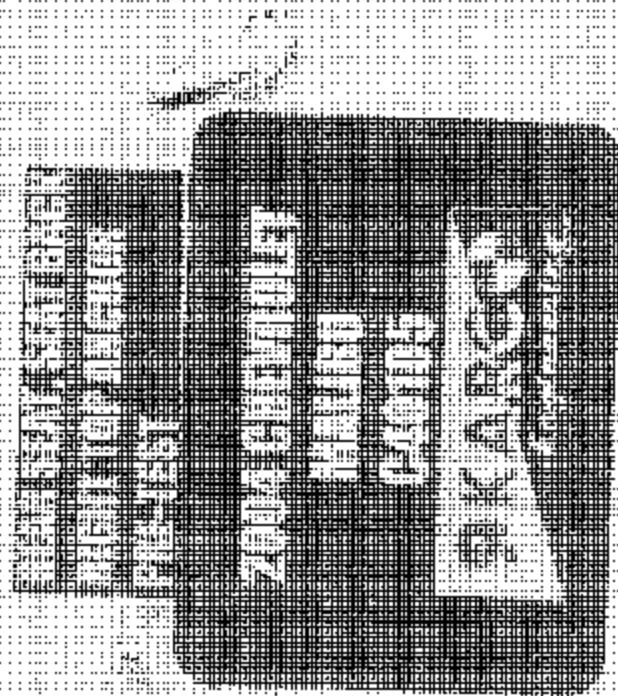


Figure A-11: Floor Pad Arristor, Rear Seal, Seal Back, Pre-Test

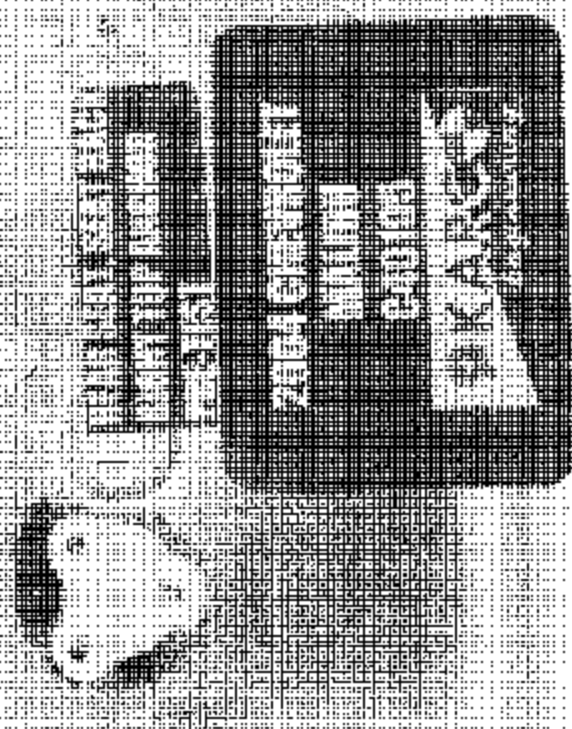


Figure A-113. Seat Anchor, Rear Seat, Seat Back, Pre-Jet



Figure A-114 Seal Anterior, Root Seal, Seal Back, Postroot

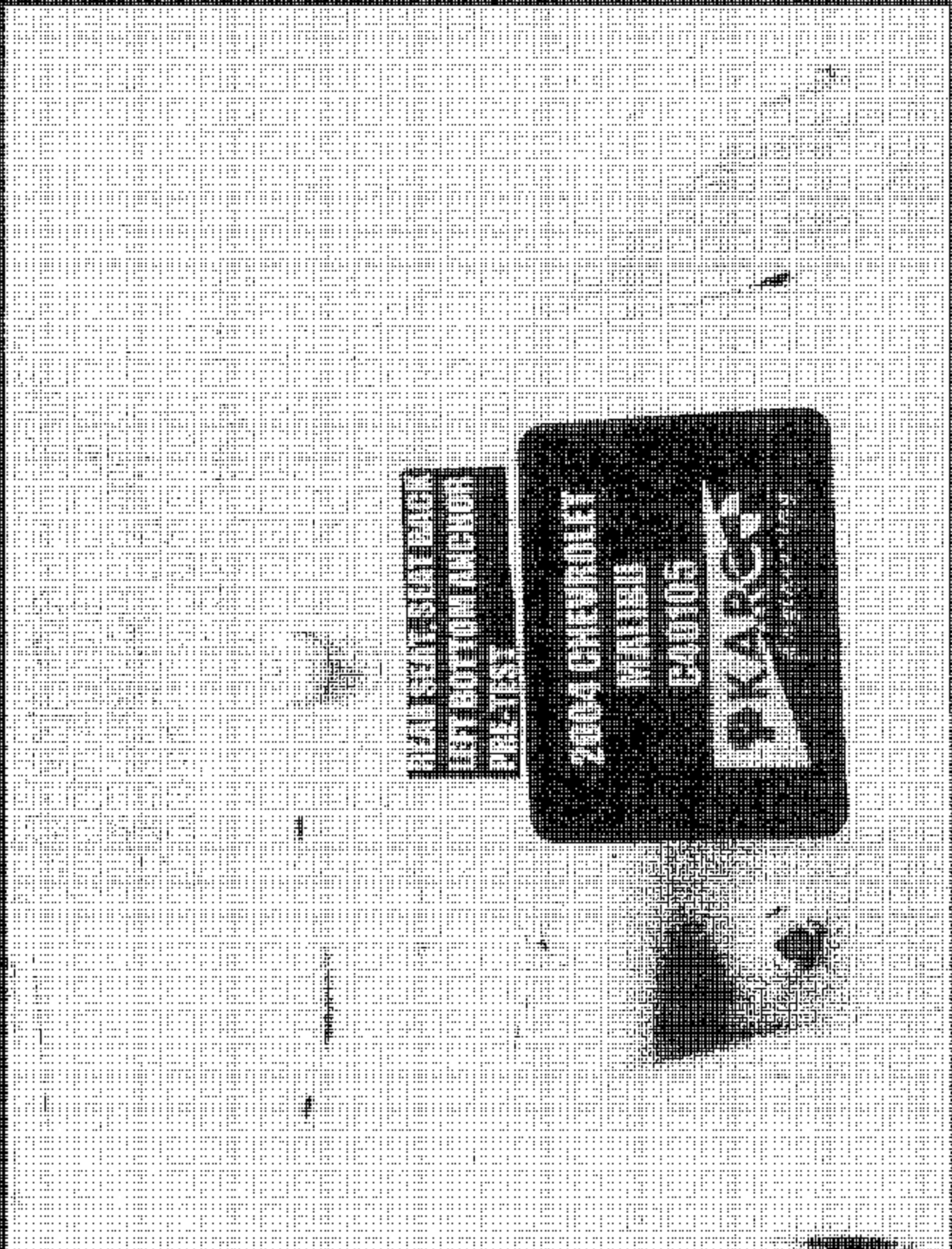


Figure A-115: Floor Plate, Record, Rear Seat, Seat Back, Pre-Tax

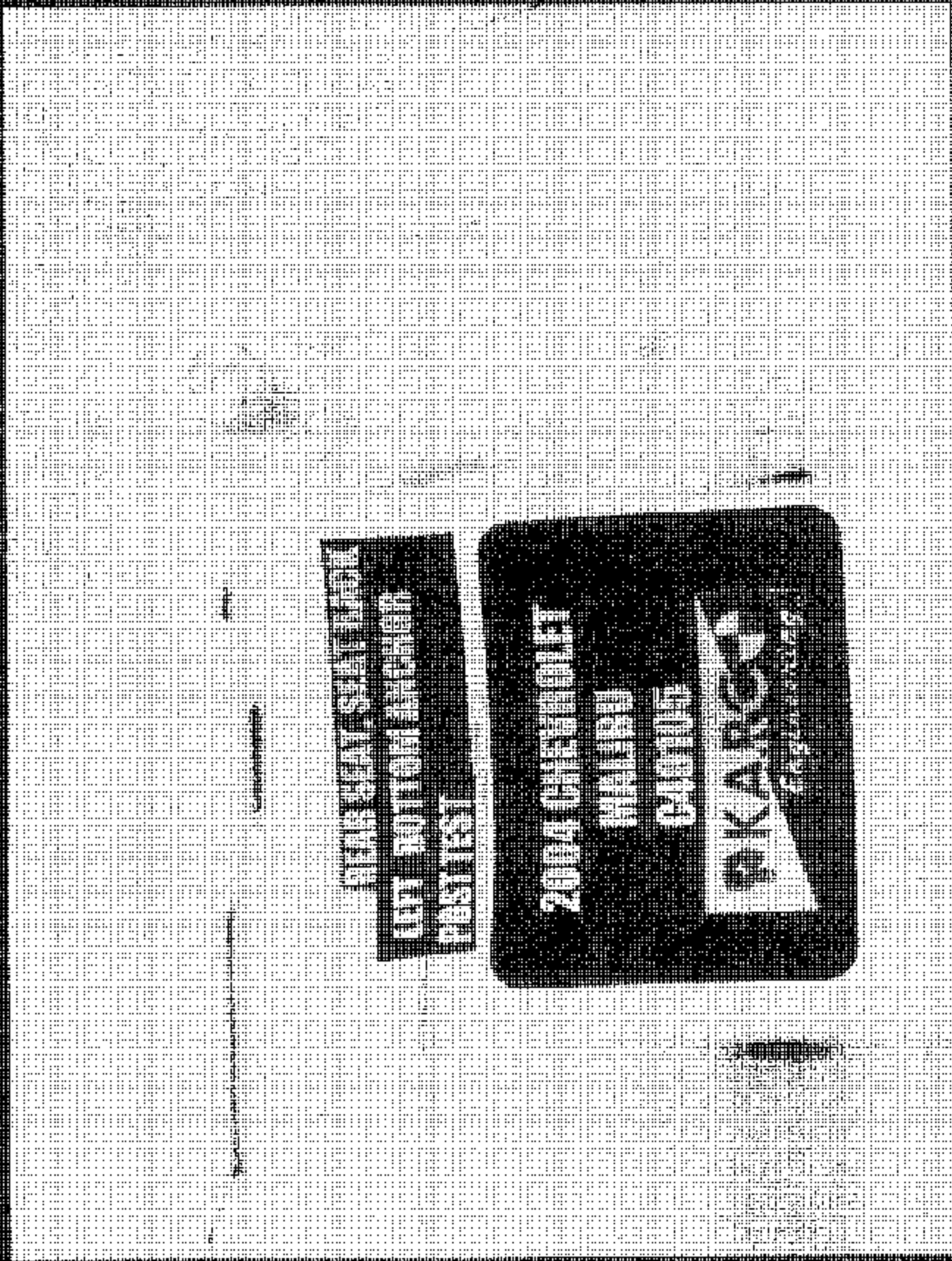


Figure A-115: Fiber Fun Anchor, Right Side, Cont. Part, Post-105

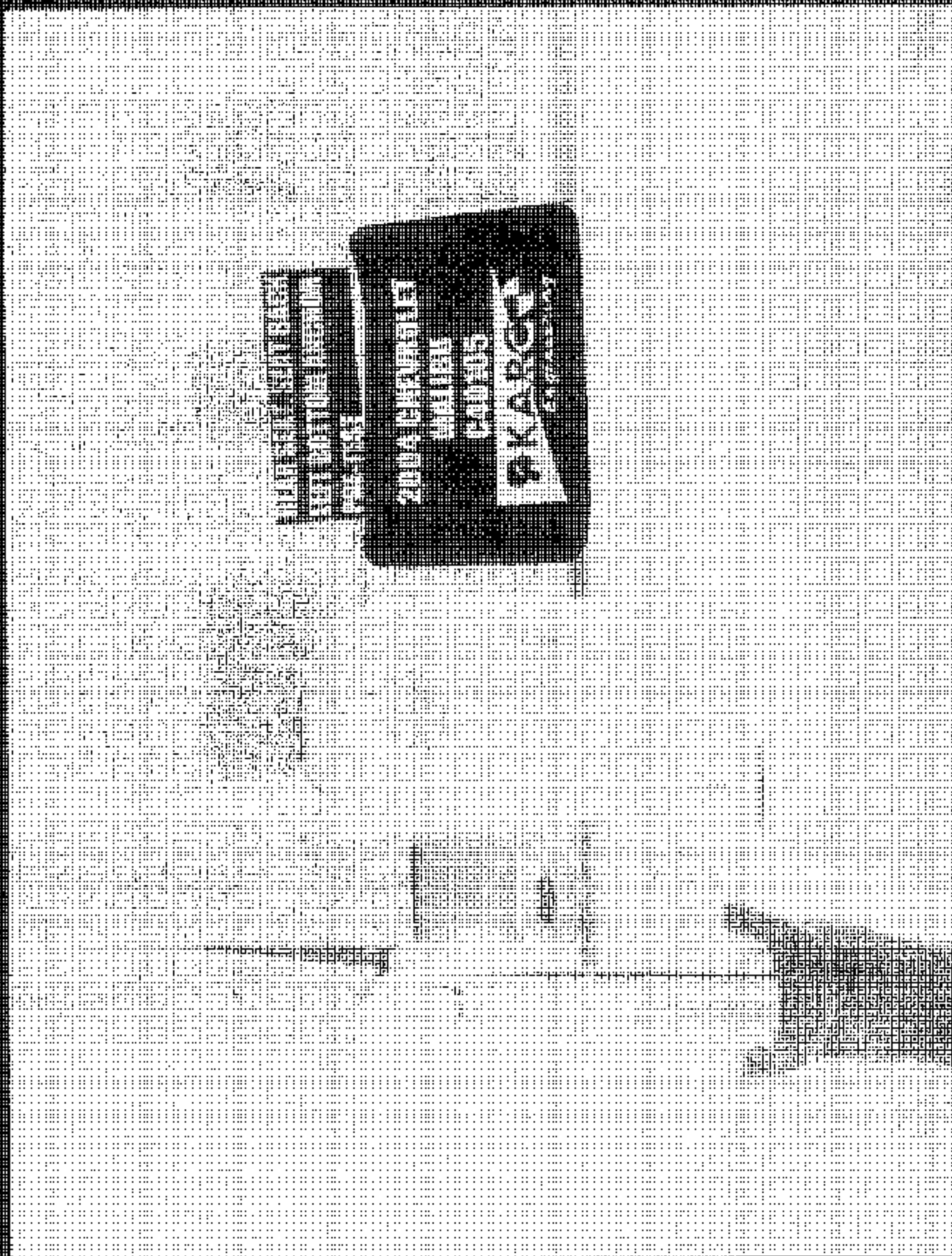


Figure A-117: Seat Anchor, Rear Seat, Box Pack, Pike-Teal

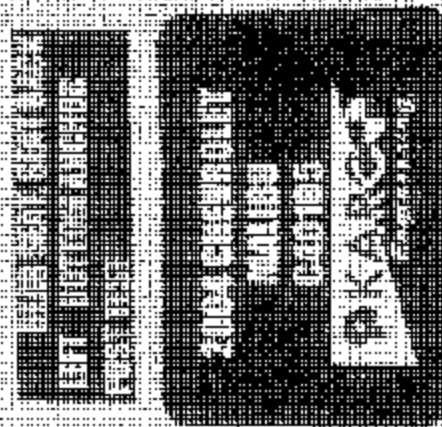


Figure A-1: Seat Arrangement, Rear Seat, Side Back Post-Test



Figure A-113: Floor Pan Anchor, Rear Seat Sash Bracket, Pre-1991

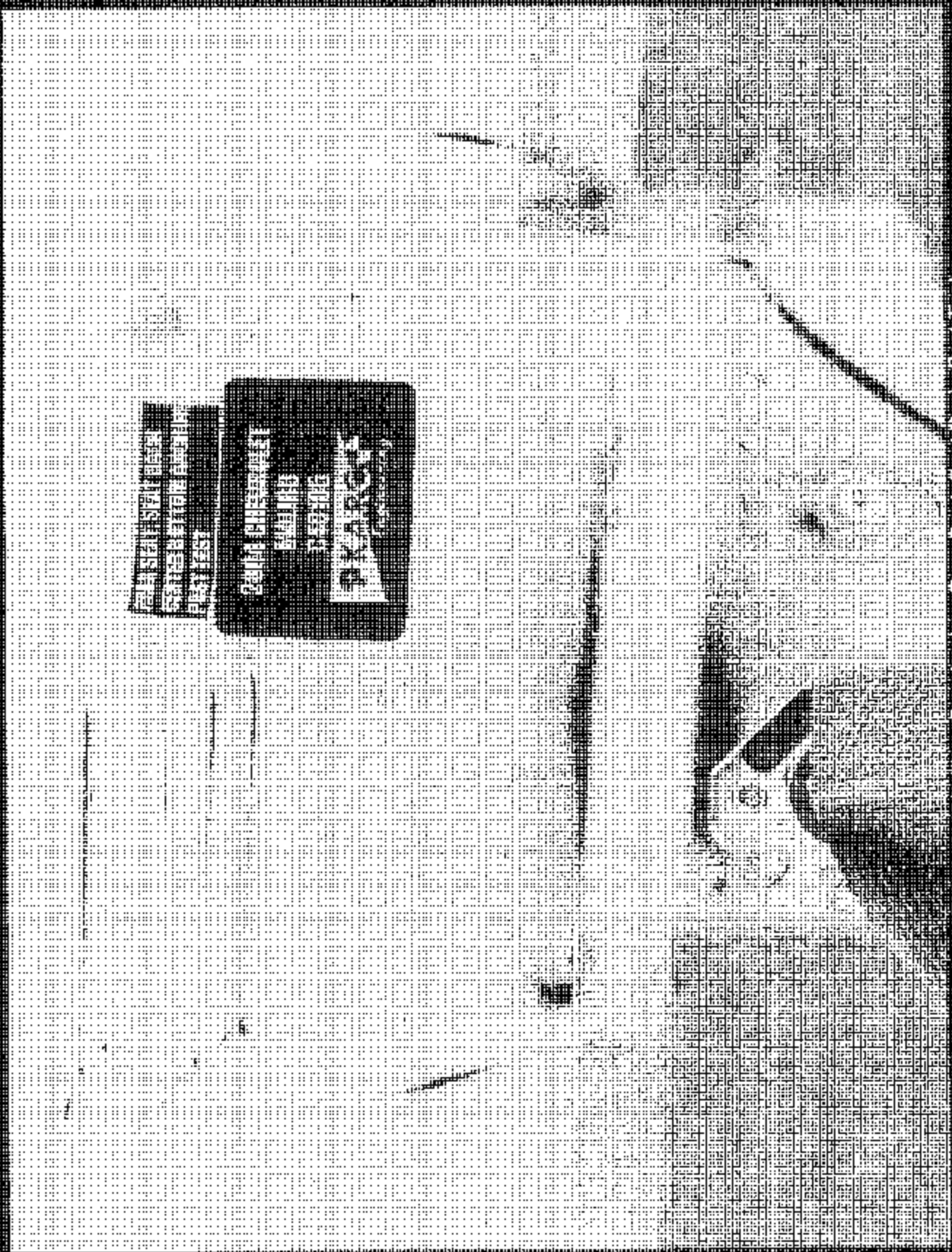


Figure A-120: Floor Pan Anchor: Rear Seat Seal Back Post Test



Figure A-121: Saab Anchor Rear Seal Seal Back Pre-Test

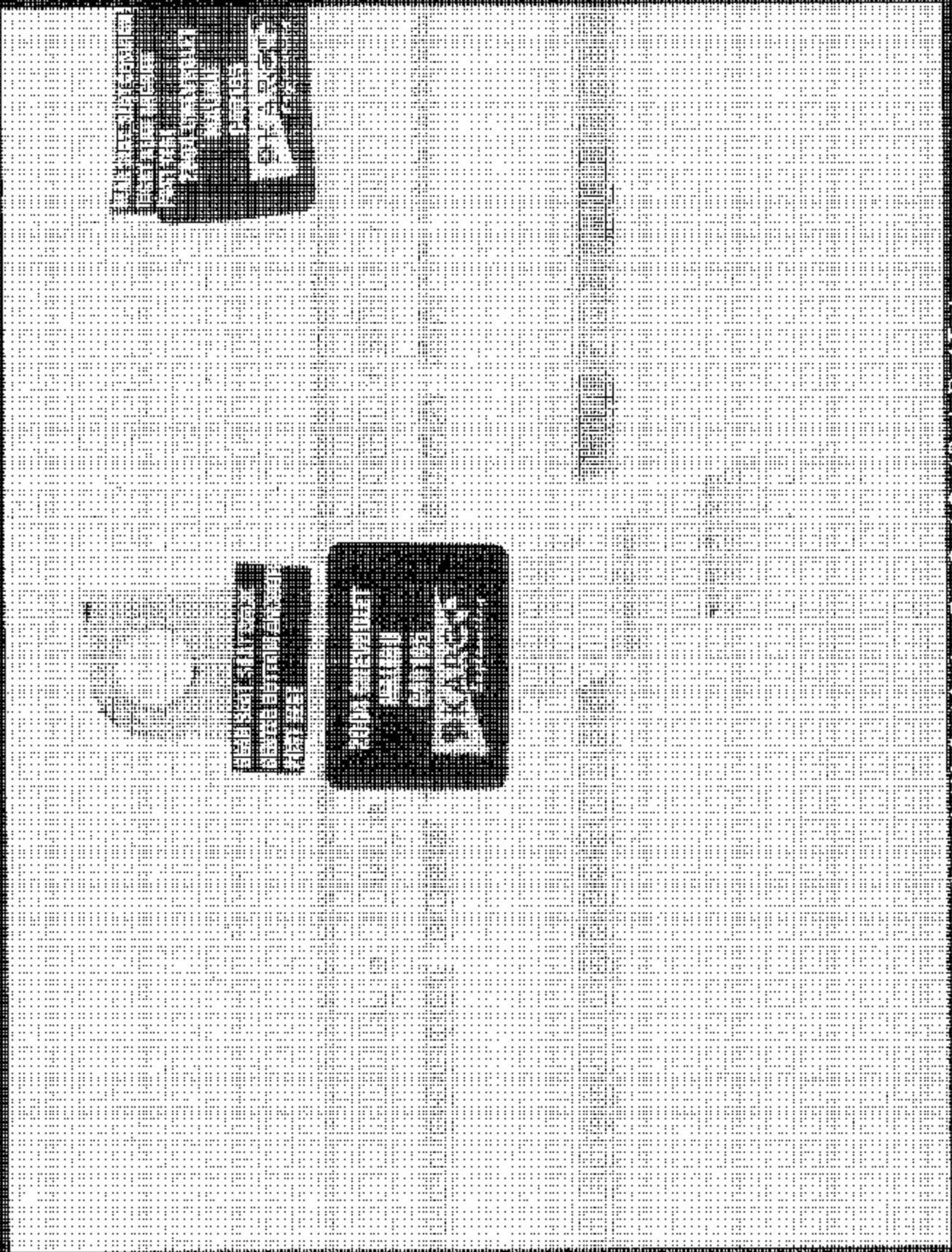


Figure A-122: Sabi Anchor Rear Seat, Sabi Back Rested



Figure A-125. Floor Pan Anchor, Rear Seat, Seat Back, Pin-Tight

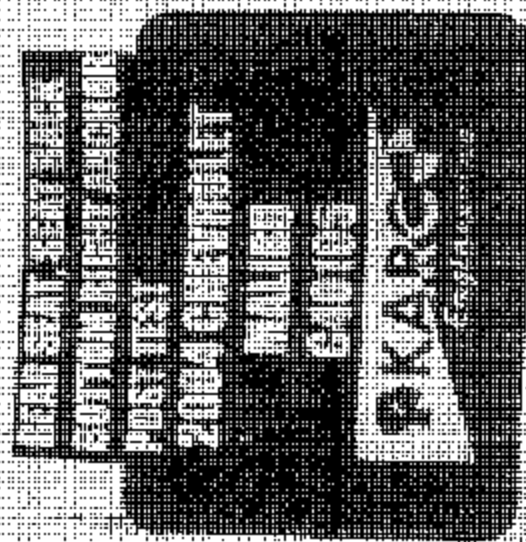


Figure A-124 Floor Pan Animal Rest Seal, Seal Back, Post Test

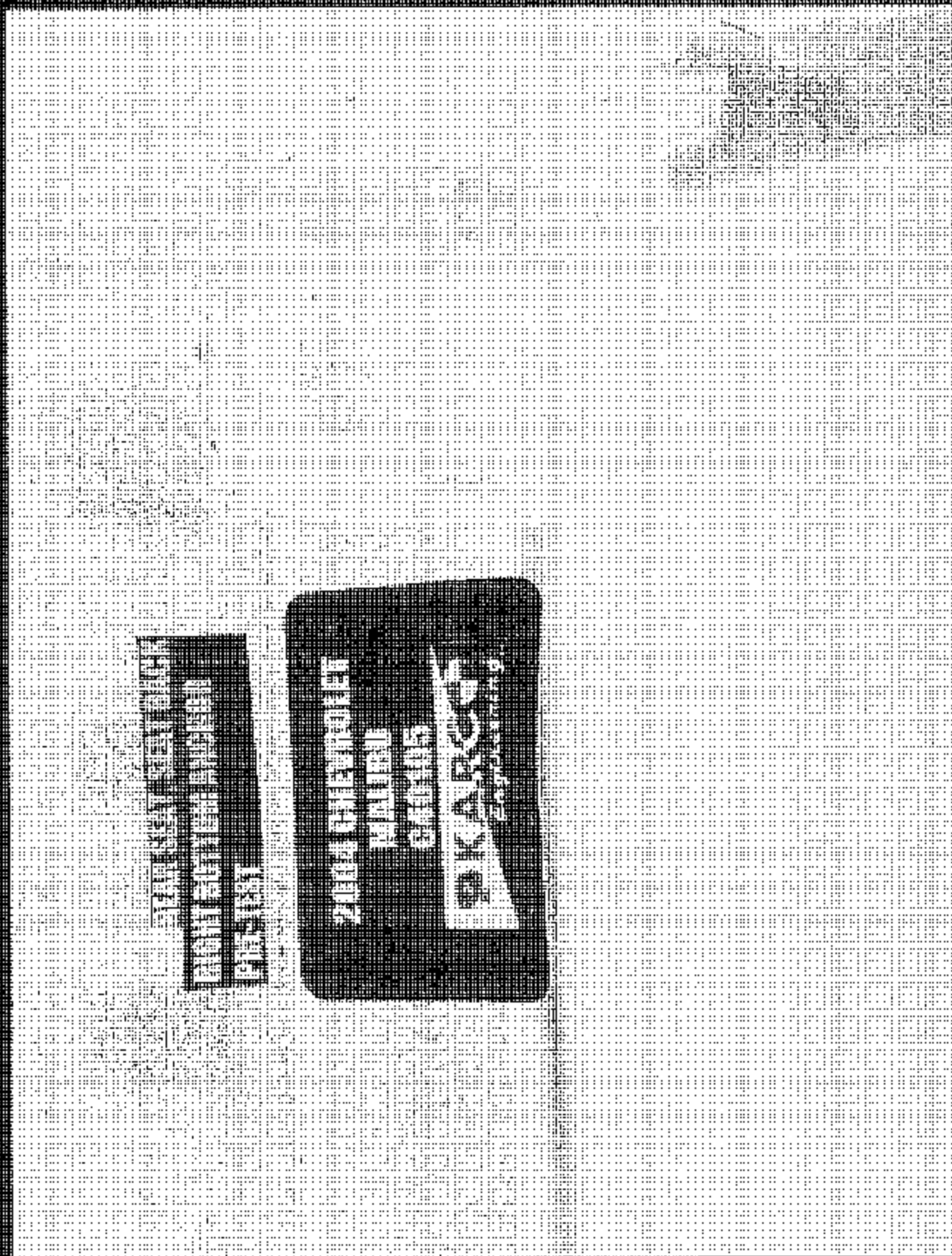


Figure A-125: Seal Anterior, Seal Anterior, Seal Anterior, Seal Anterior, Seal Anterior

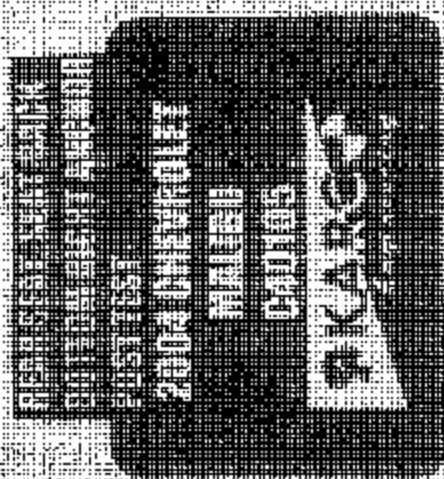
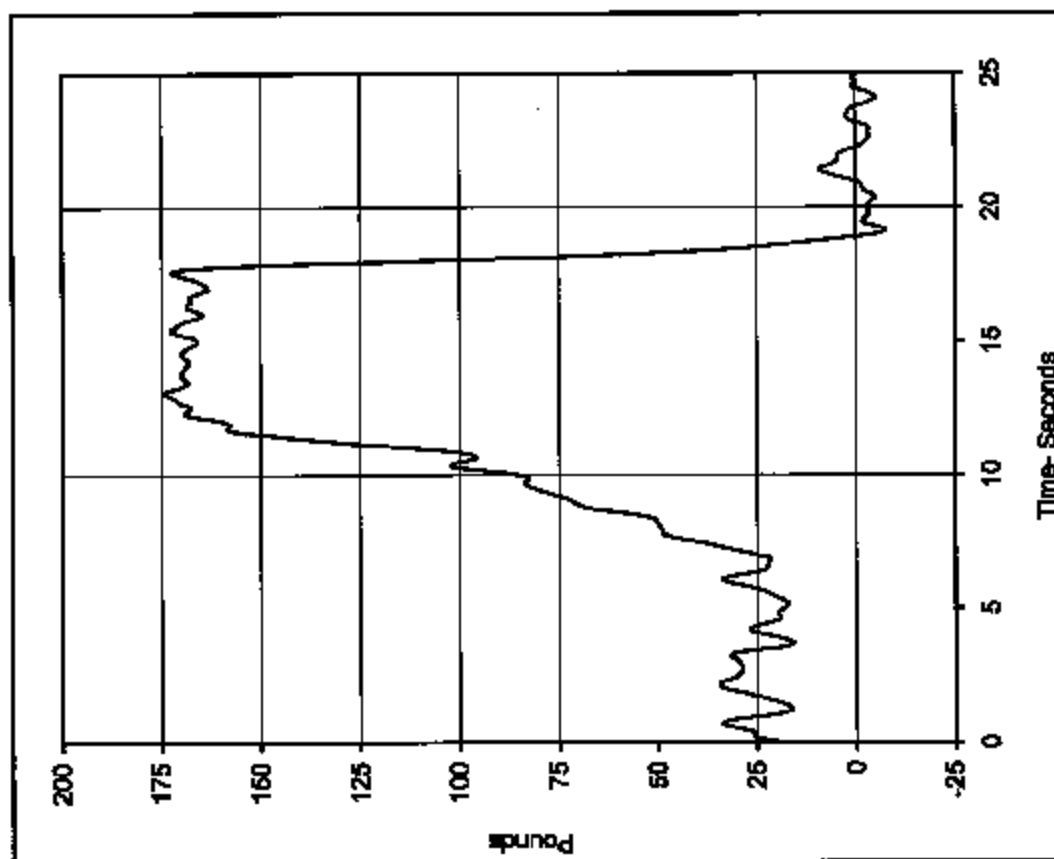


Figure A-126: Seat Anchor: Push Seal, Seat Back, Post-1997

APPENDIX B
DATA PLOTS



Curve Description		CURNO	Type	
Driver Air Moment Load		001	FIL	

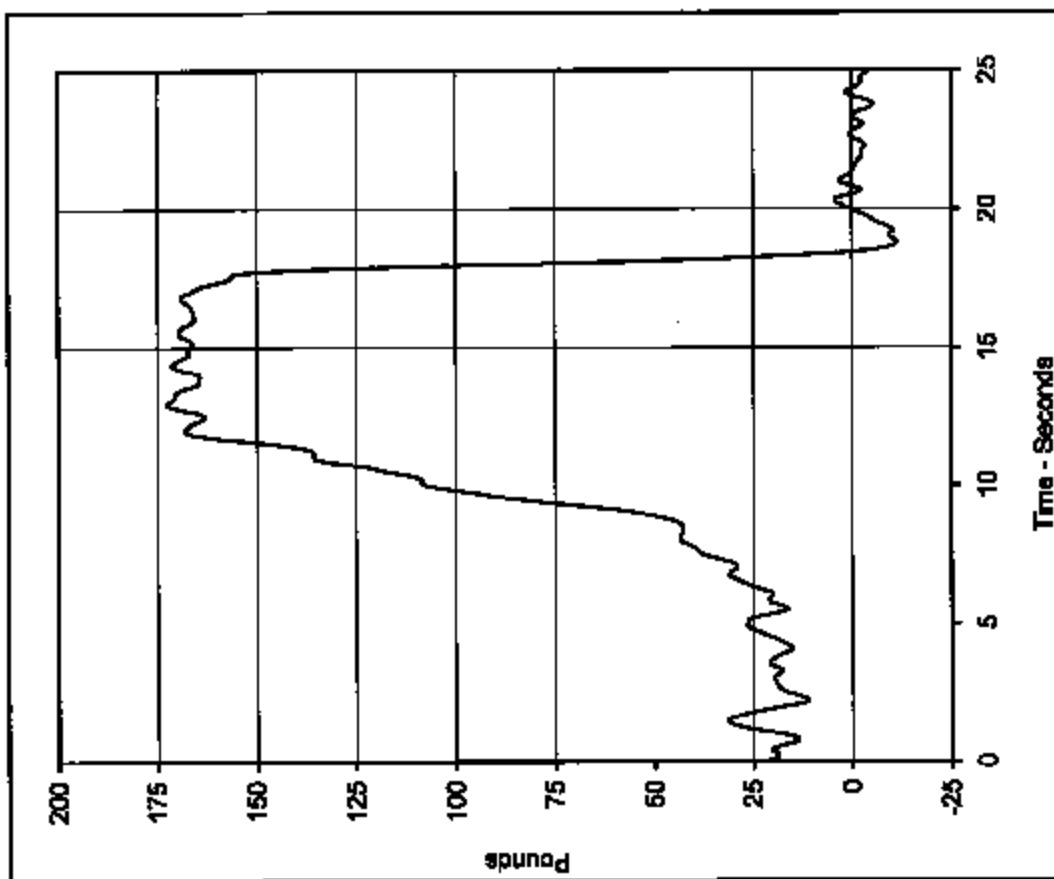
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	174.3	13.1	-7.6	19.2	1

Test Program:

FMVSS 207 Air Moment (Front)

Test Vehicle:

2004 Chevrolet Malibu 4 Door Sedan



Curve Description		CURNO	Type	
Pass. Air Moment Load		002	FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	172.5	13.0	-11.3	18.8	1

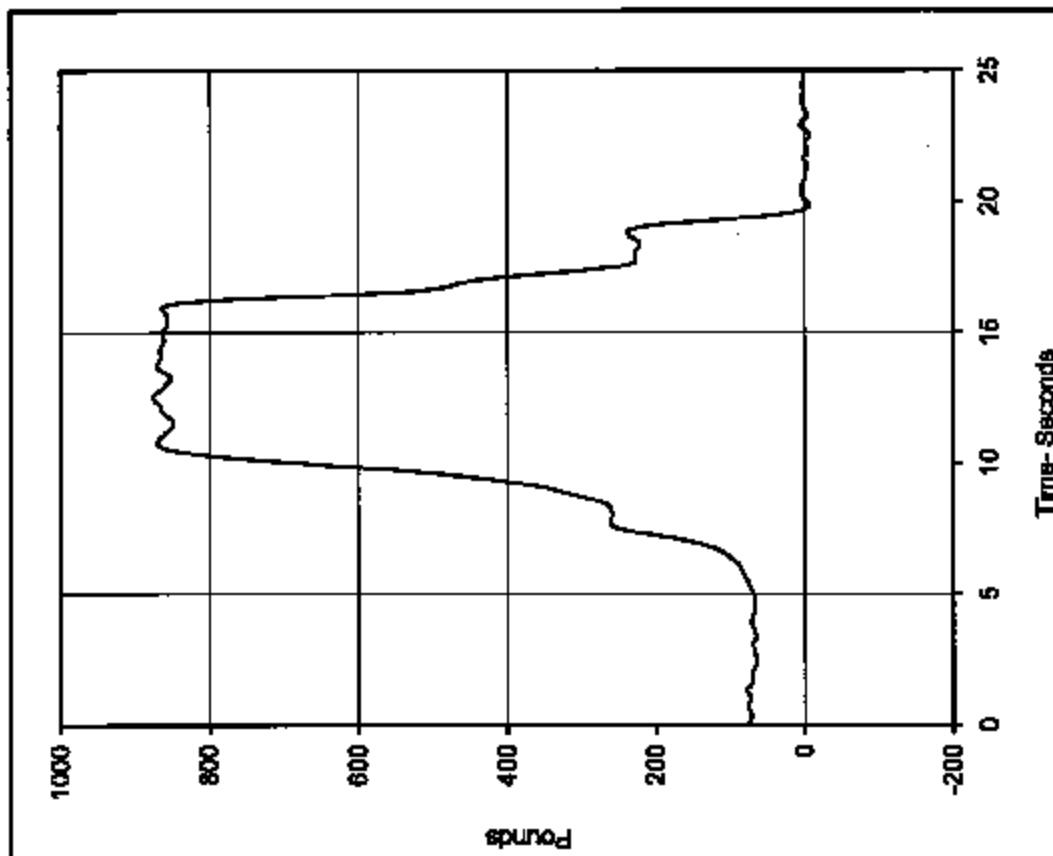
Test Date:

6/8/04

Project No.:

C40105

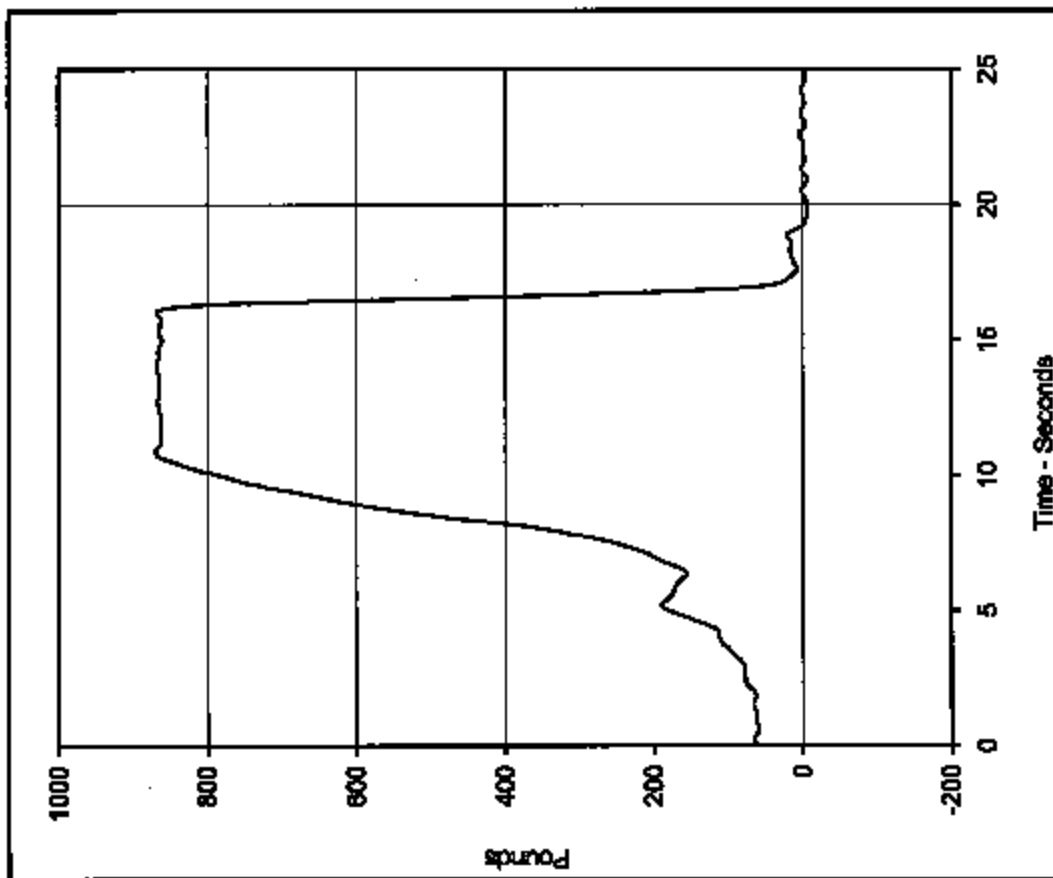




Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	875.7	12.5	-6.2	19.9	1

Test Program: FMVSS 207 Air Seat Frame and Adjusters (Front)
 Test Vehicle: 2004 Chevrolet Malibu 4 Door Sedan

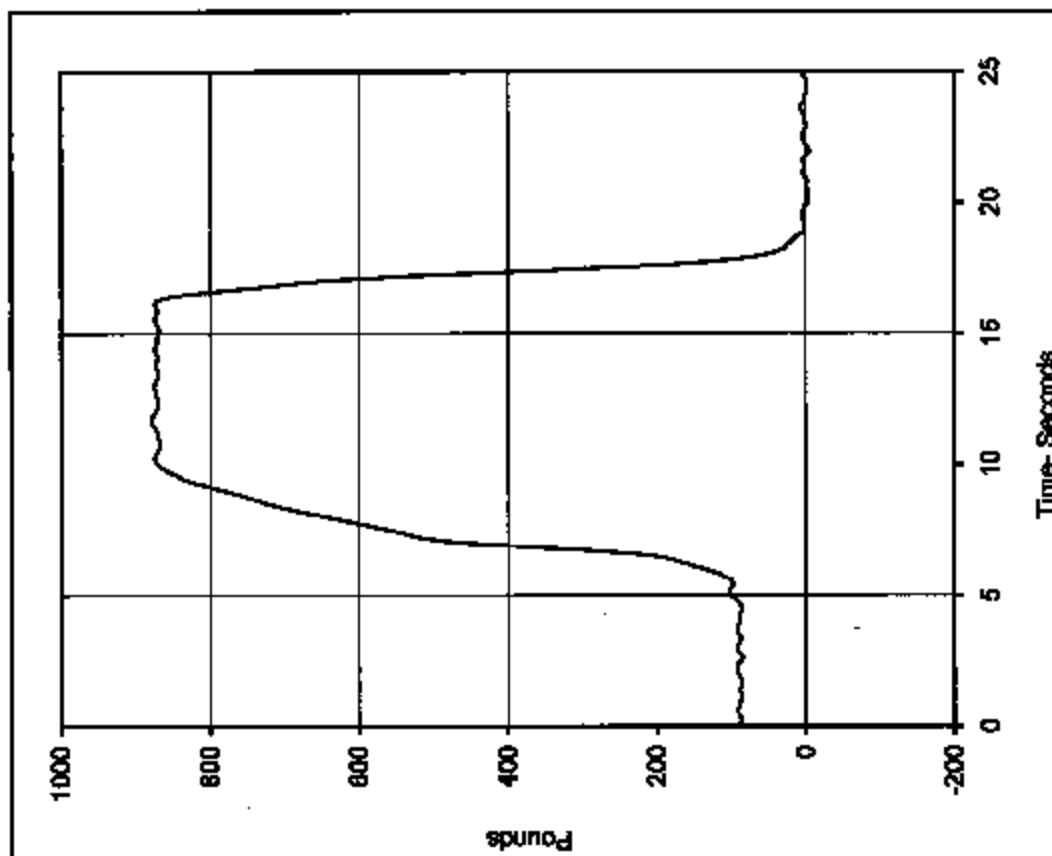


Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	868.6	10.9	-7.1	20.9	1

Test Date: 8/8/04
 Project No.: C40105

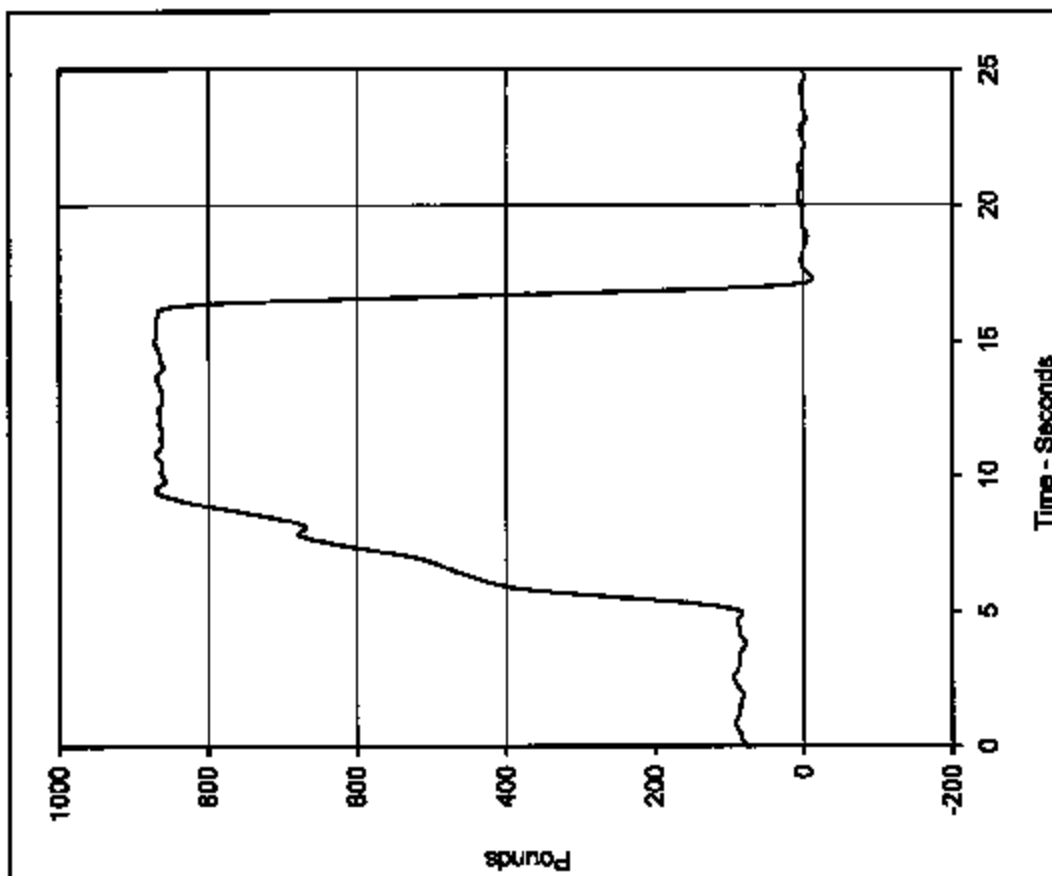




Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	878.2	11.7	-5.1	22.0	1

Test Program: FMVSS 207 Fwd Seat Frame and Adjusters (Front)
 Test Vehicle: 2004 Chevrolet Malibu 4 Door Sedan

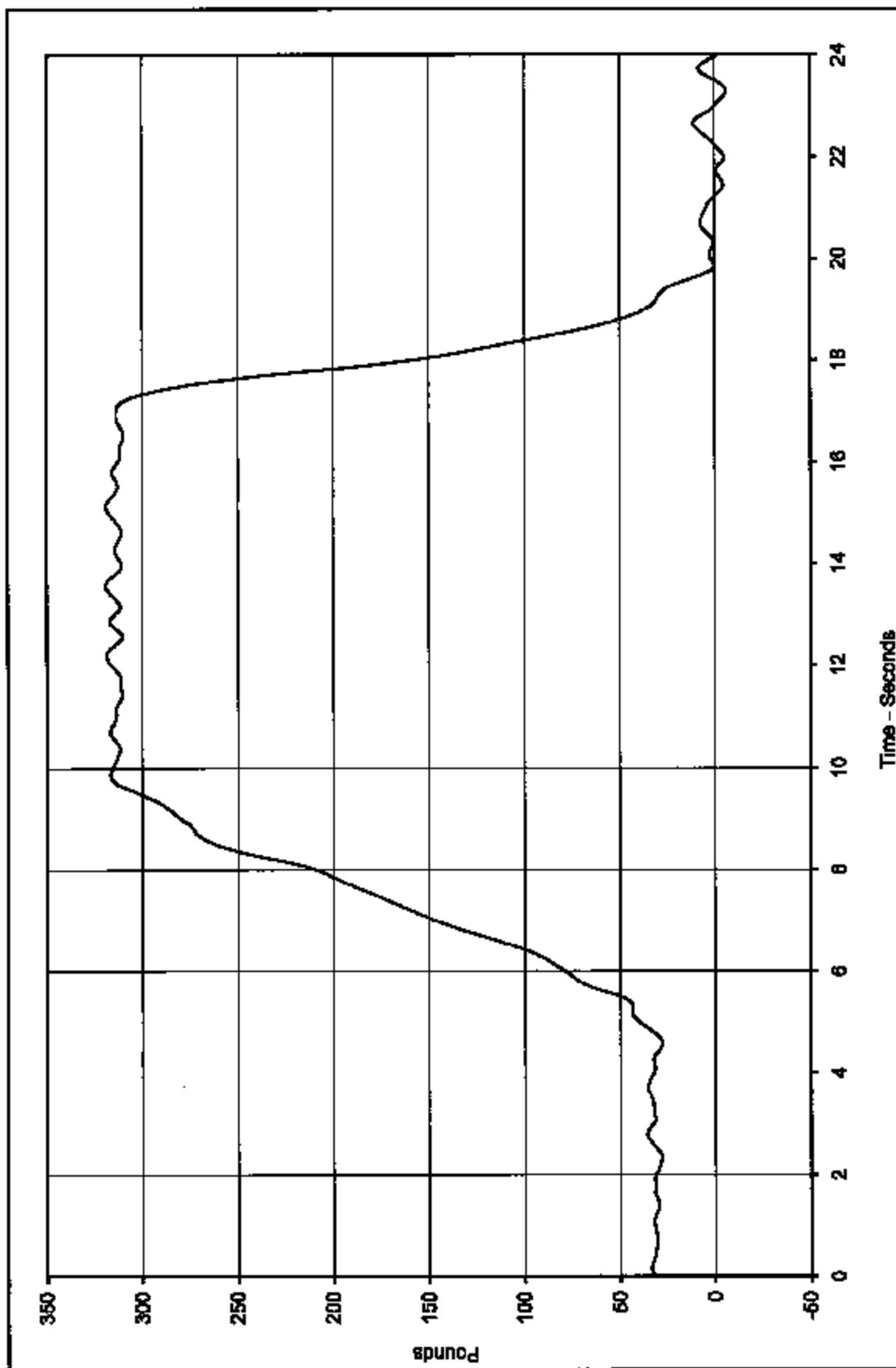


Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	872.3	15.0	-11.6	17.3	1

Test Date: 8/8/04
 Project No.: C40105





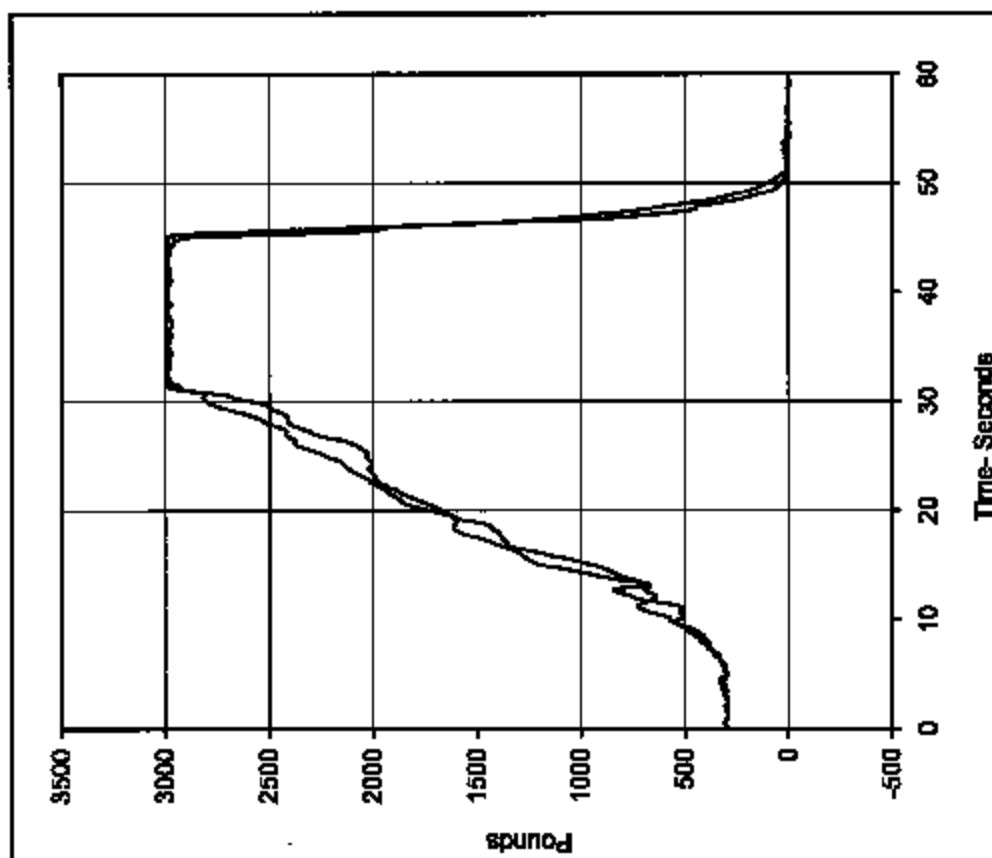
Curve Description	CURNO	Type	Units	Max	Time	Min	Time	Filter (Hz)
Pass. Seat	001	FIL	Pounds	319.2	13.6	-5.9	23.3	1

Test Date: 6/9/04

NHTSA No.: C40105

Test Vehicle: 2004 Chevrolet Malibu 4 Door Sedan

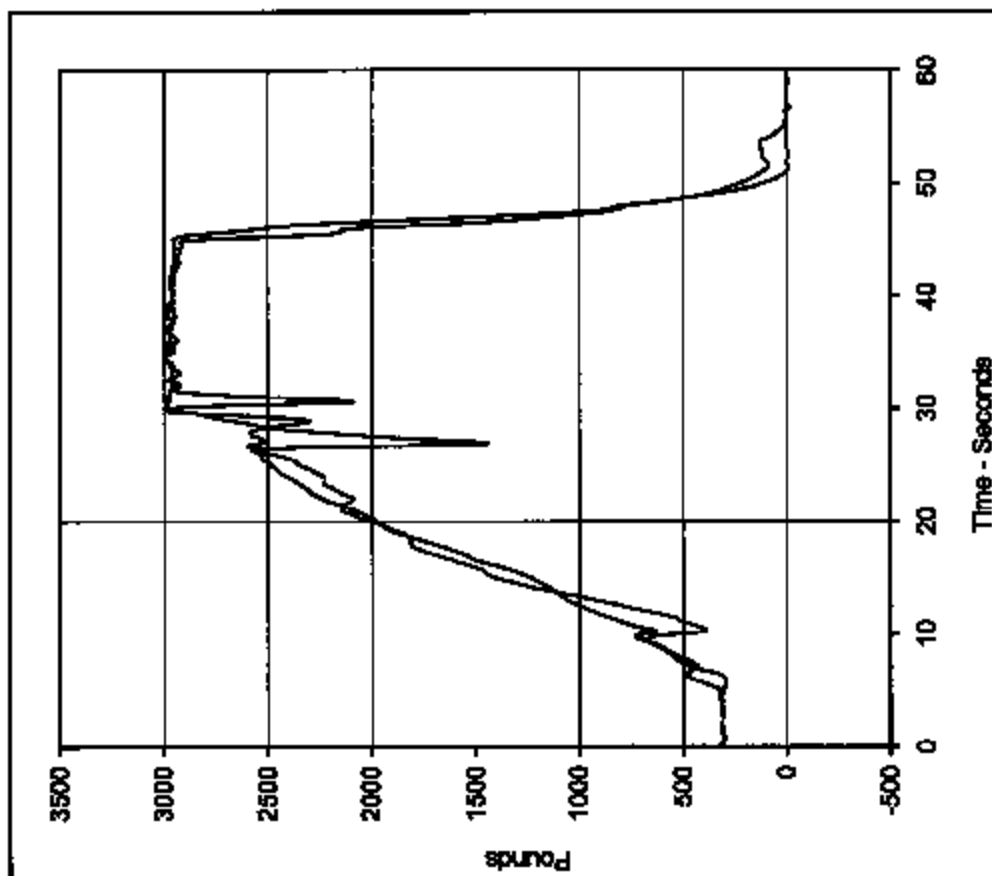
Test Program: FMVSS 207 Forward Load On Seatback (Front)



Curve Description	CURNO	Type
Driver Lap	001	FIL
Driver Shoulder	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2988.9	34.4	-10.0	59.2	1
Pounds	2988.8	38.3	-12.6	54.4	1

Test Program: FMVSS 207/210 Front Seats
 Test Vehicle: 2004 Chevrolet Malibu 4 Door Sedan

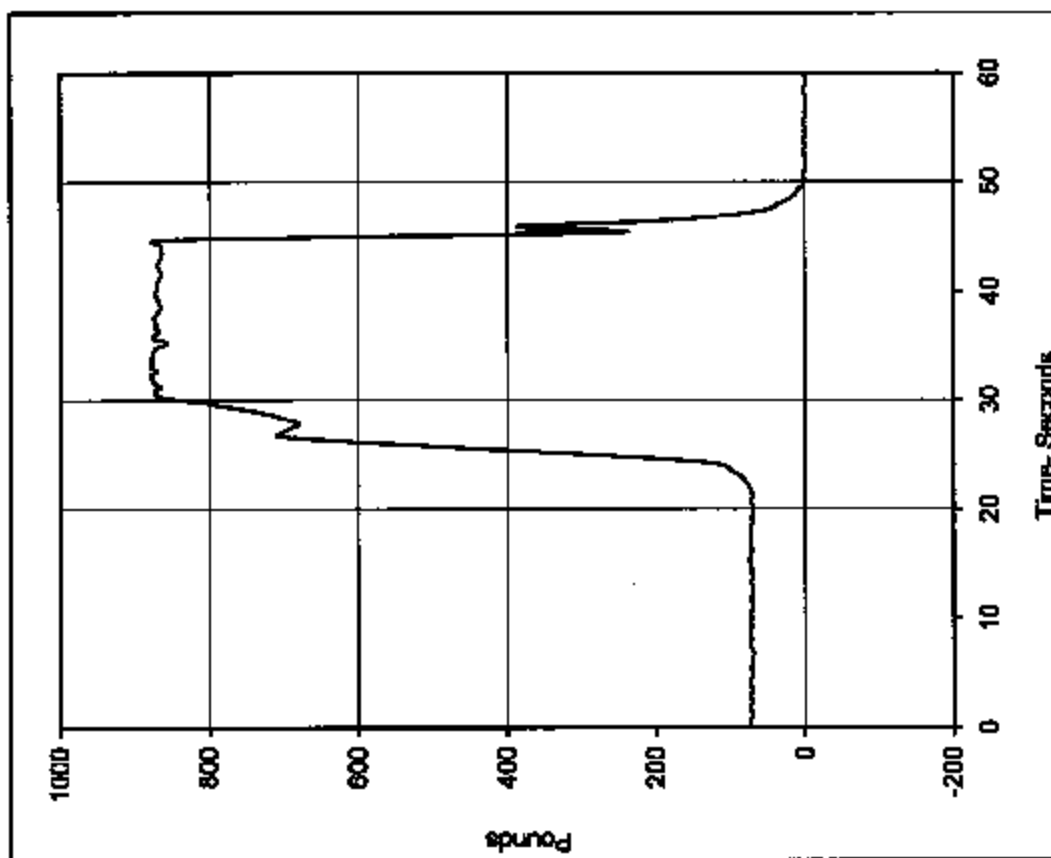


Curve Description	CURNO	Type
Passenger Lap	004	FIL
Passenger Shoulder	005	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2987.8	30.0	-7.7	52.5	1
Pounds	2895.2	34.6	-15.2	56.7	1

Test Date: 8/10/04
 Project No.: C40106





Curve Description	CURNO	Type
Driver Seat	003	FIL

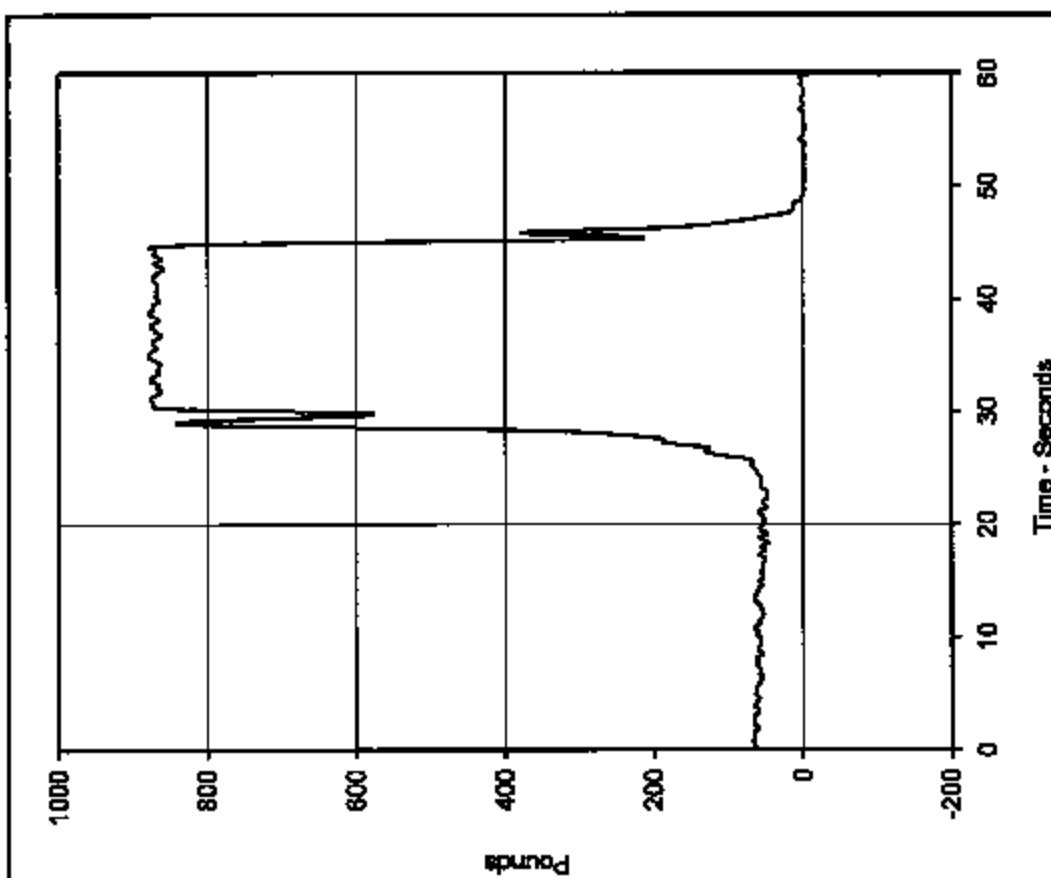
Units	Max	Time	Min	Filter (Hz)
Pounds	878.6	32.2	-2.1	1

Test Program:

FMVSS 207/210 Front Seats

Test Vehicle:

2004 Chevrolet Malibu 4 Door Sedan



Curve Description	CURNO	Type
Passenger Seat	006	FIL

Units	Max	Time	Min	Filter (Hz)
Pounds	878.9	35.0	-8.5	1

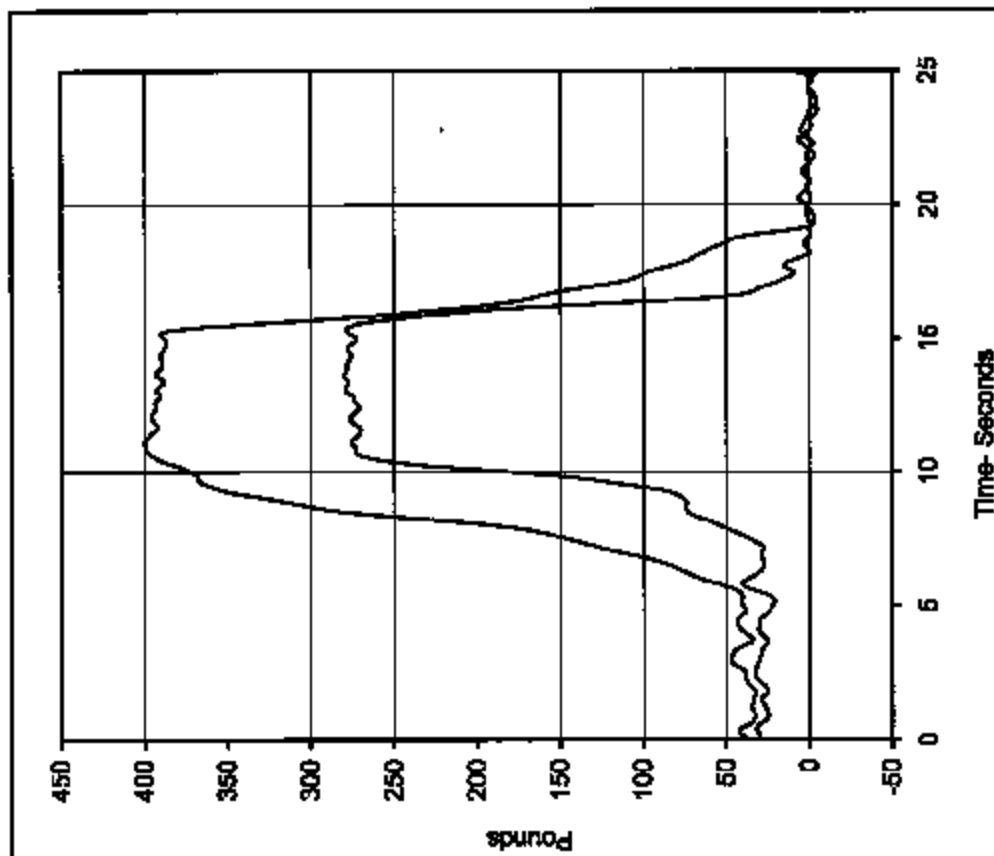
Test Date:

6/10/04

Project No.:

C40105

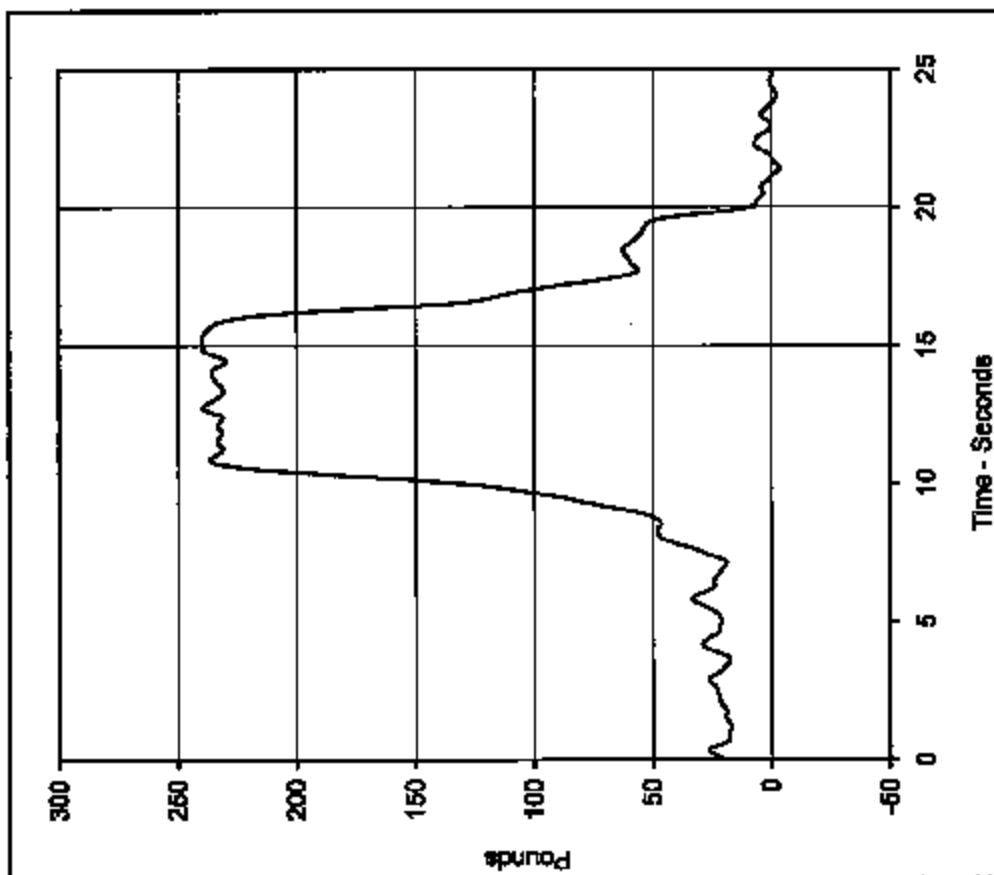




Curve Description	CURNO	Type
Left Rear Seat Back	001	FIL
Right Rear Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	400.0	11.1	-5.4	25.0	1
Pounds	279.9	13.7	-3.6	21.9	1

Test Program: FMVSS 207 Air Seat Back & Cushion (Rear)
 Test Vehicle: 2004 Chevrolet Malibu 4 Door Sedan

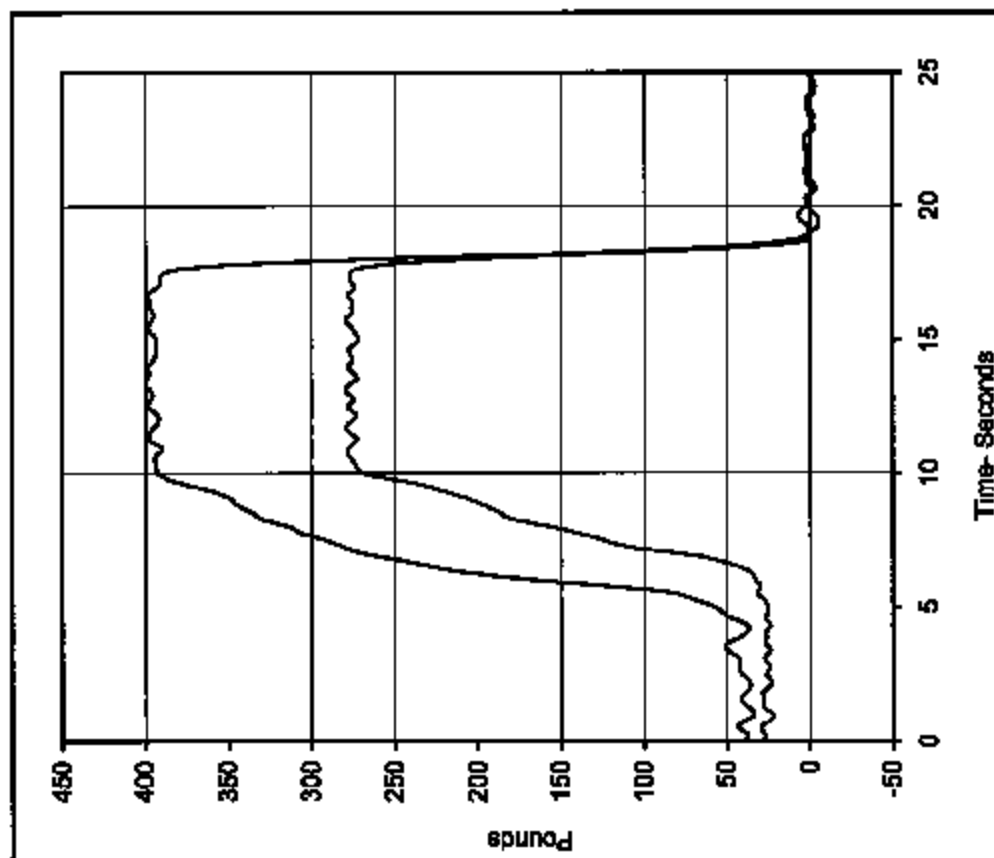


Curve Description	CURNO	Type
Rear Seat Cushion	004	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	239.9	16.2	-3.7	21.4	1

Test Date: 8/11/04
 Project No.: C40106





Curve Description	CURNO	Type
Left Rear Seat Back	001	FIL
Right Rear Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	399.9	13.4	-4.9	19.3	1
Pounds	279.6	13.2	-3.5	20.7	1

Test Program:

FMVSS 207 Fwd Seat Back & Cushion (Rear)

Test Vehicle:

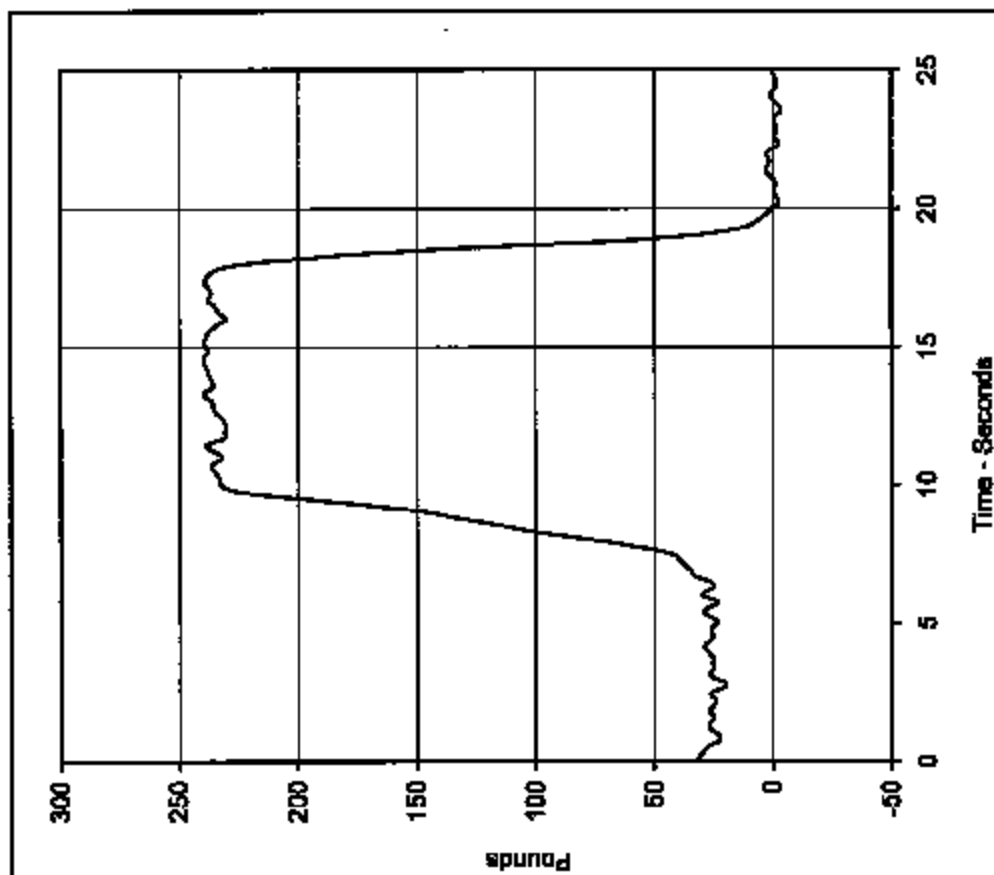
2004 Chevrolet Malibu 4 Door Sedan

Test Date:

8/11/04

Project No.:

C40105



Curve Description	CURNO	Type
Rear Seat Cushion	004	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	238.9	14.5	-3.4	23.8	1

APPENDIX C
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 207
Test Equipment List
5/8/04

2004 Chevrolet Malibu 4 Door Sedan

Description	Manufacturer	Model No.	Serial No.	Limit	Accuracy	Cal. Date	Due Cal.
Hydraulic Pump	Lincoln	T-3625-C	2460852	8 gpm @ 2700 psi			
Computer	Panasonic	CF-71	81MAA01852	N/A	N/A	N/A	N/A
TDAS	DTS	TDAS	DM0103	N/A	SAE J211	11/15/03	11/14/04
Load Cell	Lebow	3108	1001	300 LB	± 1.0%	5/20/04	11/18/04
Load Cell	Lebow	3132	622	500LB	± 1.0%	5/20/04	11/18/04
Load Cell	BLH	U3G1	49296	3K	± 1.0%	5/22/04	11/20/04
Load Cell	BLH	U-1C	N873	6K	± 1.0%	5/20/04	11/18/04
Load Cell	BLH	U-1C	11139	12K	± 1.0%	5/20/04	11/18/04
Load Cell	Alinco	342-E	22438-B	10K	± 1.0%	5/22/04	11/20/04
Load Cell	Alinco	342-E	22440-A	10K	± 1.0%	5/22/04	11/20/04
Load Cell	BLH	U3G1	81711A	10K	± 1.0%	5/22/04	11/20/04

